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CONTENTS

Symposium of Opinion, Bishop William T. Manning 1
Educational Viewpoints, by Frank C. Brown 9
Passing of a Pioneer, by Laird W. Archer 12
Chile's Official Action, by Alejandro Serani 17
Discussion of Leap Week, by P. W. Wilson 18
Notes from Calendar History, by A. K. Clevenger 23
So This is New Year's, by Dr. Edward S. Schwegler 24
Moving Toward Efficiency, by A. J. Hills 29
Studies in Transportation, by Gordon Parrish 33
Chronology of Calendars, by C. D. Morris 38
Excerpts and Reviews 42
Current Press Comment 44
Editorial: Activity in Latin America 45
From the Mailbag 46
List of New Members 47
Editorial Paragraphs ..... Inside Back Cover

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THE WORLD CALENDAR

Every Year the Same

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YEAR-END DAY, December Y, follows December 30th every year
LEAP-YEAR DAY, June L, follows June 30th in leap years

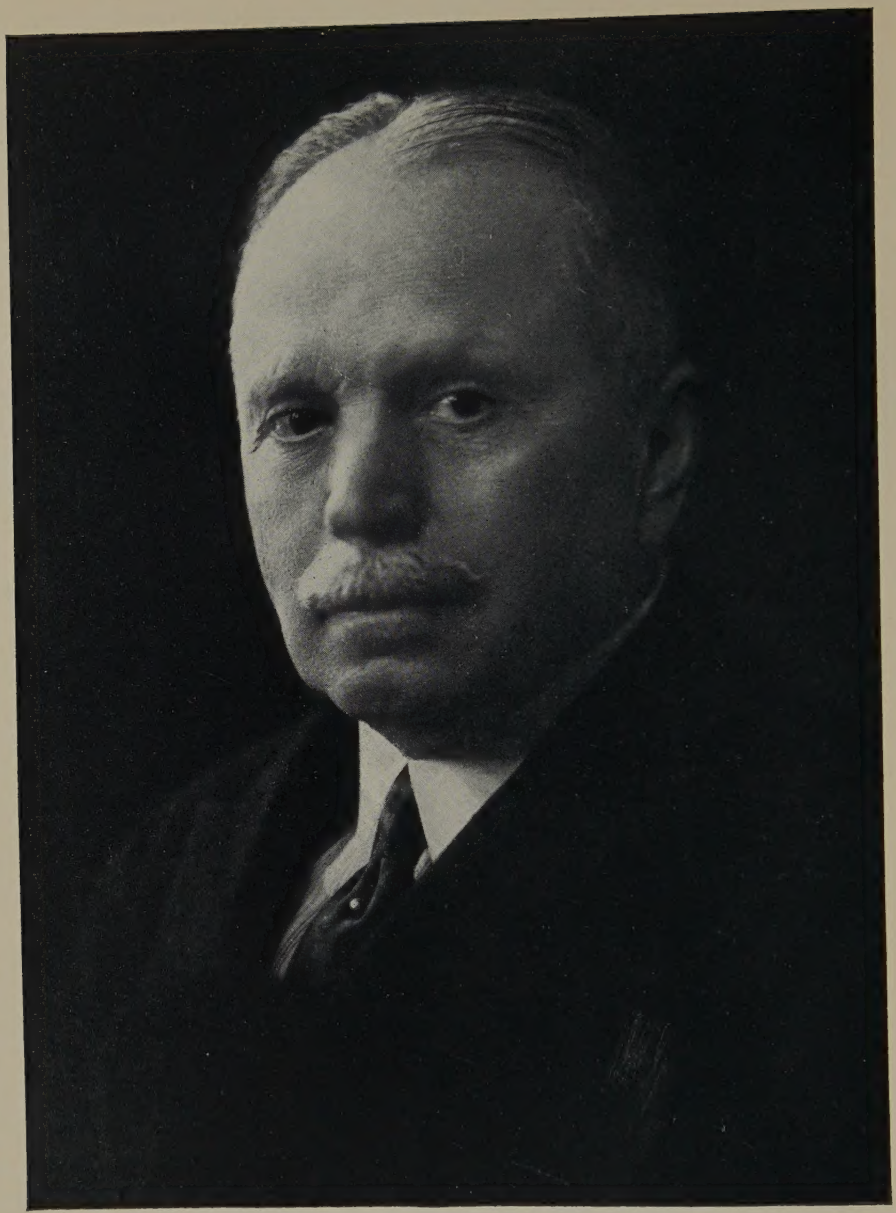
The World Calendar regulates the twelve-month year. It is balanced in structure, perpetual in form.

Its twelve months are multiples of halves and quarters. The equal quarters consist of 3 months; the first month has 31 days; the remaining two have 30 days. These quarters also comprise 13 weeks or 91 days, of which 13 days are Sundays and 78 are weekdays. Each month has 26 weekdays.

In the perpetual calendar, Year-End Day, the odd 365th and last day of the year, is considered as an extra Saturday between December 30th and January 1st. The additional 366th day in leap years is considered as another extra Saturday between June 30th and July 1st and is called Leap-Year Day. These days are tabulated as December Y and June L respectively, by which method the 31-day months begin the quarters. It is recommended that these two stabilizing days be considered by the United States as holidays. January 1st, New Year's Day, falls on Sunday, and the working week begins the following day.

The revised twelve-month year in its even quarters conforms to the seasons, recognizing natural laws. Comparisons are easily obtained; changes involved require a minimum of adjustment; expenses are not increased for business and the consumer; religious and secular holidays are stabilized, and the transition from the old to the new order is made easy by the retention of the twelve-month year.

"Our stability is but balance."—Robert Bridges.



PROFESSOR DEMETRIUS EGINITIS

Late Director of the National Observatory in Athens; Official Representative of the Greek Government and of the Ecumenical Patriarch at International Conferences on Calendar Reform. See article on page 12.

JOURNAL
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CALENDAR REFORM

EDITORS
CHARLES D. MORRIS CHARLES C. SUTTER

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SYMPOSIUM OF OPINION

Extracts from Letters Regarding the Action of the Episcopal General Convention in Endorsing Calendar Reform

Under the forceful leadership of Bishop Manning, the Episcopal General Convention in October passed a comprehensive resolution in favor of calendar reform and the stabilization of Easter, approving specifically the type of calendar revision known as The World Calendar. Since that time, many letters have been received by the Bishop regarding the action of the church. The extracts given below will indicate the general tone of this correspondence.

"THE suggested calendar reform appeals to me," writes George F. Baker, chairman of the First National Bank of New York. "I have consulted with others whose confidence I have, with the idea of finding how the proposed calendar would appeal to people running a business. The reaction I get is that the proposal seems to be a real improvement over the present calendar, that there is apparently no disadvantage to business in its adoption, that on the contrary it would seem advantageous to business to have all quarterly periods end on a Saturday."

"The matter of The World Calendar seems to me the best presentation of the subject that I have read; I can see good reasons why a fixed and exact year, in which the same day of the month is the same day of the week, would be a good thing," declares General James G. Harbord, chairman of the Radio Corporation of America. "Calendar reform would be of advantage and have favorable results," says James Speyer, the banker.

"I have read the resolution with much interest and feel that the points made are sound and the action contemplated constructive," states Lammot duPont, president of E. I. duPont de Nemours and Company. "Under the leadership of the churches this study has made greater progress than I had expected," says Gerard Swope, president of General Electric.

"I certainly would highly approve, and would do my best to help," writes William Randolph Hearst. "I am entirely in sympathy with a reform of the calendar, and should think the United States might properly call an international convention," suggests George Foster Peabody, the banker. "The question is one which can be disposed of only by international action," writes Andrew W. Mellon, ex-Secretary of the Treasury.

"This movement, I judge, will meet practically unanimous endorsement, nationally and internationally," declares Arthur Williams, former vice-president of the New York Edison Company. "Calling of an international convention for consideration of the problem would appear to be in order," suggests A. P. Giannini, chairman of the Bank of America, San Francisco.

"I do not know of any objections to the proposed reform, and while my acquaintance is necessarily somewhat superficial, such limited examination as I have been able to give it indicates that the plan you are advocating is practical and desirable," writes Myron C. Taylor, chairman of the United States Steel Corporation.

"I see no reason why efforts should not be made to have the United States call an international convention to consider the matter at an early date, as it is one that would be very useful and should be encouraged," says Leonor F. Loree, president of the Delaware and Hudson Railroad. "The proposal impresses me personally very much more favorably than that for a 13-month year," comments H. W. Prentis, Jr., president of the Armstrong Cork Co. "I hope you may be successful," declares Colonel E. M. House.

"I am deeply interested in the movement," writes Mary E. Woolley, president of Mount Holyoke College. "I am in favor of reforming the calendar as proposed," says Dr. Frederick B. Robinson, president of the College of the City of New York. "I have long felt that some form of stabilization of the calendar would be of advantage," declares Chancellor Harry W. Chase of New York University. "I am very much in favor," writes Dean H. E. Hawkes of Columbia. "The only form of revised calendar that has the slightest chance of adoption is the 12-month World Calendar," says Professor Edward V. Huntington of Harvard. " I see no reason why we should not take the initiative in calling an international convention to consider this matter at an early date," declares Professor Edward R. A. Seligman of Columbia. "I am much in favor of such a program," writes Grace Abbott, from the University of Chicago.

"I am very much in sympathy with the movement," writes Mabel

Walker Willebrandt, "I heartily approve," says Dr. S. Parkes Cadman. "The resolution meets with my approval, 100 per cent," declares Lowell Thomas. "I am in sympathy with the declared program of the Protestant Episcopal Church," writes Ellery Sedgwick, editor of the Atlantic Monthly.

"For the railroad industry reform of the calendar would have marked advantages," suggests Joseph B. Eastman, federal coordinator of Transportation. "I am fully in accord with the resolution," writes Isador Lubin, U. S. Commissioner of Labor Statistics. "I am heartily in favor of international action on revision of the calendar," says Dr. Arthur E. Morgan, chairman of the Tennessee Valley Authority. "In my opinion, you and the others progressing this matter are performing a constructive service," declares J. S. Crutchfield of the American Fruit Growers. "I feel very definitely that the United States could well assume responsibility for sponsoring an international convention to consider the matter," writes Robert Fechner, Director of Emergency Conservation Work, Washington. "I am entirely in favor of your plan; while a change might cause a little confusion for a year or two, the convenience of it would soon offset any trouble the change might produce," says Lyman Carrier, chief agronomist of the Soil Erosion Service.

"We were very much interested to learn of this action, also that the survey conducted by the Federal Council of Churches indicates increasing support on this reform from other churches," says a joint letter from Winfield W. Reifler, chairman, and Morris A. Copeland, Executive Secretary of the government's Central Statistical Board, which adds: "In view of the desirability of stabilizing the date of Easter and regularizing the calendar, it seems to us very unfortunate that there are in this country two separate proposals having active support. We suggest therefore that a definite effort be made to get these two groups together."

"I see no possible objection to the suggested change and a good many advantages," declares President James R. Angell of Yale. "I am fully in accord with the project," says Francis Walton, editor of the New Outlook. "I think that everything is to be commended which ties the world together in a common interest; I should be happy to aid in your undertaking," states Jane Addams.

One of the most comprehensive and interesting letters comes from Mary Roberts Rinehart. "I was on Mr. George Eastman's committee for the reform of the calendar," she writes. "Since his death the matter has apparently lain in complete abeyance. As a matter of fact, the 13-month year was so drastic that it found little or no general support. Stabilization of Easter would be a very excellent thing; also the division of the year which would equalize the quarters would be highly advantageous. If the subject is taken up by the League of Nations and supported by the Vatican, it might become a very important world movement. Important, of course,

it is under any circumstances. Personally I can see no possible objection to the plan, and can only hope that it will be successfully carried through."

SENATORS AND CONGRESSMEN

Calendar reform will not come up for consideration in the present Congress, because the next international convention on the subject is not to be held until 1936 and no definite Congressional action is expected until some international agreement has been reached as to procedure. Nevertheless the subject is a prominent one in the minds of many statesmen and public leaders, and a great deal of study and influential support is being marshalled for the revision of the calendar at no later date than January 1, 1939.

"I am favorable to this proposal and would like to see a move made in that direction," says Senator Arthur Capper of Kansas. "The suggestion that you make would meet with my entire approval," writes Senator Reed of Pennsylvania. "Personally I approve of your suggestion," says Senator Goldsborough of Maryland. "I feel very favorable to the suggestion," declares Senator Bulkley of Ohio. "I will be very glad to approach the matter sympathetically when it comes up," writes Senator Couzens of Michigan.

"It is to the interest of the world that it should have a perpetual calendar, and I think the one you propose is satisfactory; I am in favor of your scheme and would like to know if you would like me to do anything about it, and if so, what?" asks Senator Kean of New Jersey.

"I favor a change in the calendar in harmony with the resolution," says Senator Thompson of Nebraska. "I approve of the United States calling an international convention to consider this proposal, and any other step that will aid in making The World Calendar internationally effective," states Senator Overton of Louisiana. "The proposition of The World Calendar Association is an interesting one and undoubtedly has many advantages," says Senator Hale of Maine.

"The attitude of the Episcopal Church and other religious bodies makes the problem of consequence," writes Senator White of Maine. "I favor calendar reform and am not opposed to our country taking the lead," declares Senator Thomas of Utah.

"The proposal is very interesting," says Senator Frederick Steiwer of Oregon. "The calling of an international convention would meet with my entire approval," states Senator N. L. Bachman of Tennessee. "This matter will have my earnest consideration," writes Senator Gerald P. Nye of North Dakota.

"I have long been an advocate of the 12-month plan of calendar reform, and shall do all I can to promote its adoption," said the late Congressman Anthony J. Griffin of New York. "I have been interested for a long time; I am a member of the Roman Catholic Church and many of our publica-

tions have carried articles on this subject, so I do not approach it as an entire stranger," writes Congressman D. J. Driscoll of Pennsylvania.

"I must confess I have never given any close study to the question, but a reading of the resolution appeals to me at first flush rather strongly," suggests Congressman James W. Wadsworth of New York. "I am greatly interested in the principle of a stabilized calendar," says Congressman Finly H. Gray of Indiana. "Undoubtedly there are many arguments in favor of it and very few in opposition," says Congressman G. W. Edmonds of Pennsylvania, who has made a careful study of the whole matter, and definitely favors the 12-month plan as contrasted to the 13-month proposal, stating as regards the latter: "If such a radical change as a 13 month year were to be adopted, it would add to the confusion of the present day to such an extent that it would be most inadvisable even to consider it."

"All the principal creeds of America and of the world will endorse your views: the reform would eliminate confusion not only in liturgical matters, but also in lay business," declares Congressman Leo Kocialkowski of Illinois. "The suggestion meets with my approval," says Congressman Colgate W. Darden, Jr., of Virginia. "It looks very reasonable to me," writes Congressman Paul R. Greever of Wyoming.

"I am in sympathy with the plan approved by the General Convention, and it is my personal opinion that this plan has a better prospect of approval than the proposed 13-month calendar," states Congressman Francis B. Condon of Rhode Island. "I will be glad to lend my cooperation in this matter," says Congressman Rabaut of Michigan. "I will very gladly support a measure to that effect," declares Congressman Gassaway of Oklahoma. "When the matter comes before the House, I will be happy to support it," says Congressman Leonard W. Schultz of Illinois. "I am heartily in favor of calendar reform," declares Congressman John B. Hollister of Ohio.

"I can see no reason why anyone should hesitate to support such a progressive move," writes Congressman Matthew A. Dunn of Pennsylvania. "I would be heartily in favor of such action," says Congressman Elmer E. Studley of New York. "Calling of an international convention strikes me as a good method of approach to the program," suggests Congressman Gillette of Iowa. "The suggestion to hold an international convention is good, I believe," echoes Congressman Charles N. Crosby of Pennsylvania. "I hope the reform may be accomplished," writes Congressman Schuyler Merritt of Connecticut.

"I will be glad to render such assistance as is possible: as a one-time merchant I may add that such a change as you advocate would be of tremendous benefit to the retail business," writes Congressman Clark W. Thompson of Texas. "A universal plan initiated at an international convention should prove effective," says Congressman James M. Mead of New

York. "As far as I can see, there is every reason for revision and practically no reasons for objecting," writes Congressman Byron N. Scott of California.

"I am in favor of calling an international convention to consider the matter," suggests Congressman Will Rogers of Oklahoma. "Ever since this question came up for discussion some years ago, I have felt that the proposed changes would be a great improvement, and I hope to see them adopted," writes Congressman Alfred F. Beiter of New York. "It does appear that your plan for calendar revision is one that would be of value," says Congressman D. Lane Powers of New Jersey. "Calendar reform is well worthy the friendly attention of those unselfishly interested in progressive betterment," writes Congressman Clarence F. Lea of California.

"Any proposal with the support this one has is, I am sure, meritorious," says Congressman Samuel F. Hobbs of Alabama. "An international convention, initiated by our own country, seems to me a very commonsense way of uniting upon some universal plan of calendar reform," writes Congressman Donald C. Dobbins of Illinois. "I am very much interested," declares Congressman J. Hardin Peterson of Florida. "I shall be very glad to do what I can to cooperate with you," suggests Congressman Andrew Edmiston of West Virginia.

"I do not know of any reason why the resolution which was passed by your House of Bishops and the House of Deputies should not be passed by Congress," writes Congressman Charles D. Millard of New York. "The United States could be the prime mover in this," says Congressman Thomas O'Malley of Wisconsin. "This proposal appears to me a very good one," declares Congressman E. W. Patterson of Kansas. "I have been a disciple of calendar reform for several years," writes Congressman C. W. Henney of Wisconsin. "I am in favor of the calendar reform suggested," states Congressional Delegate Anthony J. Dimond of Alaska. "I presume Congress could place its influence in support of the matter," suggests Congressman James A. Meeks of Illinois.

Governors of several states show an equal enthusiasm in approving the action of the convention. "Am heartily in favor of this project and will gladly do anything I can to help," writes Governor Pinchot of Pennsylvania. "The subject naturally interests me," says Governor Ritchie of Maryland. "Shall be glad to cooperate," declares former Governor Moore of New Jersey, now a U. S. Senator. "I can think of no serious objection to the revised calendar," says Governor Buck of Delaware.

"I approve of an international convention to take action on the matter," suggests Governor Cross of Connecticut. "Am much interested in the resolution passed by your General Convention in favor of Easter stabilization and reform of the calendar: both suggestions would seem to be sensible," states Governor Ely of Massachusetts. "Calendar reform has

been the subject of earnest discussion for years," says Governor Horner of Illinois, "and is now ripe for action."

"I am heartily in favor of the proposed World Calendar," writes Governor McNutt of Indiana. "I am in sympathy with the proposal outlined in the resolution and shall favor any plan whereby the aims indicated by the General Convention may be carried out," says Governor Herring of Iowa.

"Will be pleased to do what I can in this connection," volunteers Governor Sholtz of Florida. "I agree with you on this proposition," declares Governor Murray of Oklahoma. "In regard to the world-wide movement for calendar reform," says Governor Allred of Texas, "I feel that the 12-month proposal would require a minimum of readjustment, in marked contrast to the 13-month plan. I shall be glad to cooperate."

"Let me say I am heartily in favor of the revision of the calendar and I wish the undertaking success," writes Paul M. Pearson, Governor of the Virgin Islands.

EDITORIAL COMMENT

New York Times: "The General Convention, in adopting a resolution looking first of all to the stabilization of Easter, gave its support also to a reformed calendar of 12 months with equal quarters. The proposed fixation of the Easter date has a religious meaning in that it will have an effect in unifying and stabilizing the church calendars of all the great communions, both Catholic and Protestant, both Western and Eastern. . . . The convention pronounced in favor of such revision of our civil calendar as to keep our division of the year into 12 months and at the same time to make the quarters of equal length. . . . The preamble of the resolution recites the fact that studies and inquiries have revealed an overwhelming proportion of churches openly in support both of the stabilization of Easter, now set for April 8, and the reform of the calendar. It is a fit time to begin a stabilized calendar as the world rises out of its despair, and it would be profitable to mankind to set apart at least one day a year as a 'world day.'"

St. Paul Pioneer-Press: "The calendar reform movement received much encouragement from the action of the recent Episcopal General Convention. The resolution approves the stabilization of Easter and the adoption of a revised 12-month calendar. This is the so-called World Calendar. . . . Action of the American churches was influenced by the endorsement of the Universal Church Council in Denmark last August. The next step is the approval of the secular world, and Bishop Manning is of the opinion that 'the unified support of the churches will make the task of international legislation easier.' There is no doubt that these recent developments are going to make people take the idea of calendar reform more seriously."

Des Moines Register: "While the subject of calendar reform has been overshadowed by the press of more urgent international matters, its recognition at the Episcopal convention is evidence that the demand for calendar revision persists. Not only was the question discussed by the delegates, but the convention overwhelmingly endorsed the stabilization of Easter and the new calendar of equal quarters. Coupled with the unanimous adoption of a similar proposal recently by the Universal Christian Council, composed of churches the world over, the Episcopal action marks a very definite alignment of Christian churches with the calendar reform movement. And the principal opposition to change has originated, or at least has been assumed to lie, in the religious groups. . . . These evidences of churchly approval will probably give courage to the League committee whenever the subject is reviewed at Geneva—and its revival is very likely in the face of such general interest. . . . One reason the equal-quarter plan is apt to prevail over the 13-month proposal is that it would not disrupt the schedule of religious holidays in the various churches."

Fairmont (W. Va.) Times: "The Episcopal church has passed a vigorous resolution endorsing The World Calendar and Easter stabilization. The importance of this action, not only in this country but throughout the world, cannot be overestimated, as it clearly points the way to other great church bodies and indicates that calendar reform will have a united Christendom back of it. . . . To the ordinary individual, perhaps calendar reform has seemed something abstract and beyond him. Actually it is something that affects him directly. However, we do not expect the public to do much for or against calendar reform. It will be the leaders of the church and the leaders of business who will negotiate the reform. Certainly our present calendar is awkward. It is unwieldy and confusing. It is not the real servant that it should be. . . . We are happy that there is at least one organization striving to bring about calendar reform."

Wooster (O.) Record: "Calendar reform gained an important convert when the Episcopal Church adopted a resolution in its favor. Advantages of a balanced calendar are obvious. The fact is there are no fundamental objections, only a mass of resistance consisting of nine parts indifference and one part miscellaneous reservations of secondary importance. Every year would be the same. One wonders how so completely logical an advance can be stopped."

Indianapolis Star: "The movement to reform and stabilize the calendar is stirring to renewed activity through action of the General Convention of the Episcopal Church. In adopting a resolution designed primarily to stabilize Easter, the convention lent its support to a reformed calendar of 12 months with equal quarters. This marks the formal entry of American churches into the worldwide campaign for a revision of the Gregorian calendar. The action was taken only after mature deliberation, since a detailed questionnaire had been submitted to the delegates well in advance of the session. . . . The reform recommended by the Episcopal delegates differs from various proposals to create a calendar of 13 months. The convention favored retention of a 12-month schedule. Arguments for this type of revision emphasized that the even quarters would conform with the seasons, that the proposed changes would require a minimum of readjustment, without increase of expenses for business or consumer, and that they would stabilize both religious and secular holidays. Calendar reform is being studied by the League of Nations, which reports sentiment throughout the world growing in favor of a readjustment."

Norfolk Ledger Dispatch: "The worldwide campaign for revision of the calendar has been given impetus by the resolution adopted by the Episcopal General Convention favoring comprehensive calendar reform. This formal entry of American churches into a movement which has been approved in principle by churches in many countries abroad is looked upon as most important. . . . To the study now being given by the League of Nations into general calendar reform the Episcopal convention gives its thorough endorsement, while emphasizing the need for stabilization of Easter. . . . A tremendous legislative process would have to be followed before the calendar change could be accomplished, but the League of Nations has machinery that could devise a cooperative plan for its universal adoption. It may be that the adoption of a reformed calendar may be one of the important steps that will lead the world to a brighter day."

Providence Journal: "At the recent Episcopal General Convention a comprehensive resolution in favor of calendar reform and the stabilization of Easter was adopted. . . . It is a matter of interest and great importance that the calendar plan which has been given this ecclesiastical indorsement is that of the uniform twelve-month year, the calendar sponsored by The World Calendar Association. Business and financial sentiment, as well as church feeling, has been sounded out extensively in various European countries and on this continent, and this plan is favored by approximately a three-to-one majority everywhere."

Atlanta Constitution: "Another indorsement for the so-called World Calendar, one of the many plans suggested for the reform of the present calendar, comes in the passage by the recent Episcopal general convention of resolutions pledging the support of the church. . . . The increasing support being given the movement assures that in time the antiquated and inefficient Gregorian calendar will give place to a calendar more in keeping with the requirements of modern conditions."

EDUCATIONAL VIEWPOINTS

By FRANK C. BROWN

District Superintendent of Schools, Westfield, N. Y.

THERE is perhaps no single class of persons in America which is more persistently plagued with the irregularities of the calendar than those who are connected with our schools and colleges. The annual making-up of a school calendar is an enterprise fraught with all sorts of difficulties and pitfalls, complicated with the eccentric incidence of holidays and the impossibility of making Christmas and Easter vacations fall efficiently into the school year. No two educational authorities ever quite agree upon the final solution of this problem, and the result is that there are many different patterns of school calendar being used simultaneously. From this, it ensues that it is difficult to make comparisons, to arrange meetings of teachers from different institutions or sections, to cooperate in observances, etc.

I happen to have in front of me, as I write, the annual school calendar for 1934-35, as made up by the New York State educational authorities for use in the attendance registers of schools throughout the state. Beside it lies the official school calendar made up by one of the county authorities, indicating the exact days on which the schools under their jurisdiction shall be in session. Comparison of the two calendars indicates that one authority shows 23 school days in October, while the other calls for but 22; for November one has 21 school days and the other 19; December has 15 days in one and 13 in the other; January 23 and 22; February 20 and 18; May 23 and 22; June 10 and 15.

With two such varying interpretations of the proper days to hold school, there is small wonder that there is considerable confusion in educational circles. And all this confusion is repeated year after year, for each year the whole business must be done again, de novo.

Perhaps it has seldom occurred to the average teacher that such a state of affairs is remediable. We accept our calendar difficulties with the same frame of mind that we accept the approach of darkness at the day's end,—without thinking whether there is anything to be done about it.

As a matter of fact, teachers should be highly interested in the current proposals for calendar reform, because these proposals would seem to be destined to cure most of the existing difficulties in our school calendars, stabilizing all school dates and rendering them permanent, so that once a satisfactory school calendar is worked out, it can be universally adopted and made to stand, year after year, immutable and invariable.

The main purpose of calendar reform, as I see it, is to remove the

wandering character of the weekdays, so that a given day of the month—e.g., March 1—will always come on the same weekday. For instance, if at the end of 1933 we had agreed that December 31 was not to be Sunday but an extra or "stabilizing" day, so that the year 1934 could commence with Sunday, January 1, we could have used the 1933 calendars for 1934; and if we had done the same thing at the end of 1934 and at the end of each succeeding year we would never have to change the calendar.

This is about all that calendar reform plans to accomplish, and it is a comparatively simple matter, which would cause no trouble to anyone. As for educators, it would result immediately in a similar stabilization of the school calendar. Last year's school calendar would be used for this year and for every succeeding year. School authorities would have an opportunity to get together and agree on the best possible arrangement of terms, vacations and holidays.

Once such an arrangement went into effect, there would be an inevitable tendency to stabilize all holidays on Mondays. Easter would be stabilized on April 8, the date already agreed upon by the great churches as well as by the civil authorities of the Great Powers. Schools would open everywhere on September 5; there would be a long Thanksgiving Day week-end about November 25; the Christmas vacation would begin on December 22 and end on January 2; the Easter vacation would begin on April 6 and end on April 16; school would close on June 8 or June 15.

It is quite astounding what advantages of symmetry and regularity appear in the school year once the suggested changes in the civil calendar are applied to the school calendar. With this new arrangement we should always know on what day of the week and what date of the month our various school appointments and engagements fell. Christmas would always come on Monday, and the other holidays throughout the year could be gradually adjusted to fall so that they would not break into the middle of the week, but would give the welcome break of an extended week-end.

One of the difficulties which educators encounter in dealing with the irregularities of the present calendar is in connection with their annual task of splitting up the school year into two or three equal terms or semesters. Under the New York State laws, a school year must include 190 teaching days. The law specifically provides: "No district shall be entitled to any portion of state school monies unless the school was taught by qualified teachers for not less than 190 days, inclusive of legal holidays that may have occurred during the term of said school and exclusive of Saturdays."

The "monies" which the law mentions are of such importance that no school in New York State can fail to comply fully with the specifications—in fact there are many rural school districts in which the State's contributions to the support of the little country schoolhouse are fully 90 per cent

of the entire cost. If the state aid should be withheld, the tax burden upon the district would be increased ten-fold. Consequently there is a heavy responsibility on the single teacher in that country schoolhouse to interpret without mistake the calendar, which is different every year.

Now, starting with a school year of 190 teaching days, how can this period be split into two or three equal terms? In New York State public schools, the division is into two parts, with the half-way point clearly marked by the dates set by the state authorities for the state-wide "Regents" examinations. In the present school year, for example, these examinations are set for January 21-25, with the end of the school year marked by similar examinations on June 17-21.

Thus, for New York State schools, the year is quite clearly marked. The calendar starts with September 4, the Tuesday after Labor Day. The first "half" of the year ends on January 25, and contains 91 school days. The second "half" ends on June 21 and contains 95 school days. The "half" years are far from equal, and their internal arrangement is quite dissimilar.

Moreover, the length of these half years changes from year to year. Christmas and Easter vacations vary in length from year to year. There is no stability and no permanency.

Last year five legal holidays were allowable towards the 190 days required by the New York State law. This year six are allowable. In some years the number is only three or four.

The matter of holidays is a perpetual nightmare to educators. This year Lincoln's birthday, while a legal holiday in New York State, was not observed by many schools, because it occurred in the middle of the week, and teachers know by experience that a midweek holiday has a certain vitiating effect on both the preceding and following days. One of my teachers has actually worked out a formula for the effect on her pupils of a midweek holiday: taking 100 as the value of a full 5-day week, she figures that a Monday or Friday holiday leaves the week's work at a normal 80. But a midweek holiday, breaking the work into two parts, leaves the week's mark at not more than 60.

A detailed examination of school statistics and programs would doubtless disclose many other advantages of a new calendar from the educational standpoint. However, this article is merely an attempt to introduce the subject and to stimulate study and discussion of it. The present writer does not profess to have gone into it in complete detail. However, such studies as he has been able to make have failed to show any disadvantages, and certainly have convinced him that many and important advantages would undoubtedly accrue to educators from the proposed revision of the calendar along the lines recommended by the League of Nations and advocated in America by The World Calendar Association.

PASSING OF A PIONEER

By LAIRD W. ARCHER

Director of the Near East Foundation, Athens, Greece

PROFESSOR DEMETRIUS EGINITIS of Athens, astronomer, statesman and devoted churchman, was the father of the modern movement for revision of the calendar. For more than twenty years before his death last year, he had devoted a large part of his time and energy to the study and advocacy of this cause. He had done more than any other man to bring it into the forum of practical international legislation, and to draw to its support a large and constantly increasing body of influential opinion.

Professor Eginitis was born in Athens on July 10, 1862. He was educated at the University of Athens and the University of Paris, graduating to a position as an astronomer in the Paris Observatory. He was appointed director of the National Observatory of Athens in 1890, reorganizing and expanding its work, and establishing a network of meteorological and seismological stations throughout Greece. Among other activities which he undertook in connection with his scientific work, he was twice Minister of Public Instruction; he reorganized the University of Salonika and founded the famous Academy of Athens; he introduced Standard Time into Greece, established the civil use of the Gregorian calendar, and represented his country and the Eastern Orthodox Church at many scientific congresses. His contributions to science and statecraft had been recognized in the award to him of many academic degrees and honorary decorations, the latter including the French Legion of Honor. His death, after a short illness, occurred on March 14, 1934.

Early in his career, while engaged in astronomical studies, Professor Eginitis was attracted to the history of the calendar, and to the constant efforts which mankind had made, through countless ages, to improve and perfect a system of time measurement that would be balanced, orderly and stable. The evolution of the calendar is a story of a gradual change from the primitive methods of savage tribes to the highly scientific calendar given to the world by Julius Caesar and improved for civil use by Pope Gregory. Professor Eginitis saw that this evolution was still going on—that modern life would soon require further improvements—that the changing conditions in economic and social conditions would force adjustments in the calendar. Increased accuracy and convenience in our system of time-measurement is called for by the speeding-up of communications; the world is smaller today than it was a few centuries ago, because of the invention of telegraph, railroad, radio, airplane and automobile.

In planning an international movement for the adoption of calendar

reform, Professor Eginitis realized the importance of having the support of the world churches. He early persuaded the Ecumenical Patriarchate in Constantinople of the wisdom of active church participation, and accordingly he was himself appointed by the Patriarchate as the official delegate and spokesman of the Eastern Orthodox Church on this subject. In a report which he made to the Patriarch in 1931, and which is published in the official archives of the Church, he said:

"I myself, as the representative of the Church at Constantinople, supported the 12-month equal-quarter plan of calendar revision in the committee of the League of Nations. The opinion of the various churches is that it can be successful, because it involves no question of dogma or canonical principle."

His statement was later supplemented and confirmed in a report prepared by Archbishop Germanos, spokesman in Western Europe for the Patriarchate, who said: "The 12-month equal-quarter plan, which the representative of the Eastern Orthodox Church has supported in many international conferences, seems an entirely logical and effective way of remedying every serious defect of the present calendar. And from the viewpoint of the earnest churchman, it has important implications which go far beyond its merits as an improved civil and business measuring rod. For the calendar has a religious meaning, too, and a revised calendar will inevitably have an effect in unifying and stabilizing the church calendar of all the great communions. The significance of this movement, in its bearing on church unity, has won for it the attention and support of church leaders."

All the important churches of the world have spoken in a more or less complete agreement with the attitude first taken by Professor Eginitis on behalf of the Orthodox Church. The Vatican indicated its sympathy and interest in the movement by officially communicating to the League of Nations its decision that "there is no dogmatic objection to calendar reform." The World Congress of non-Roman churches passed a unanimous resolution urging its member churches in various countries to petition their governments to proceed immediately with whatever international legislation is needed to make the new calendar an actuality.

Thus one sees the churches of the world uniting, perhaps for the first time in history, on the advancement of a particular cause. As the Ecumenical Patriarchate has pointed out, this fact alone, in its bearing on church unity, gives calendar reform high significance to the whole of Christendom. And the chief credit for its progress in church circles is due to the practical vision and pioneer leadership of Professor Eginitis.

Aside from the interest of the churches, calendar reform has made enormous strides in many fields of human activity since it was first proposed by Professor Eginitis to organizations like the International Astronomical Union and the International Chamber of Commerce. Scientific

and learned societies of many kinds have given it their approval. Business organizations throughout the world have worked for it, and the International Chamber of Commerce has passed resolutions at four successive congresses, demanding international action. The League of Nations undertook leadership of the legislative movement for calendar reform more than ten years ago, its activity culminating in 1931 in an international congress at which 44 countries were officially represented, with the Greek delegation under Prof. Eginitis, leading the advocates of a new calendar.

The next stage in the movement, Professor Eginitis believed, would be the formulation of a definite treaty, whereby the new calendar could be put into effect on January 1, 1939. Proposals for a convention to formulate such a treaty are now under consideration in Geneva and will come before the League of Nations during the coming year.

Professor Eginitis's first important activities as a pioneer in the international promotion of calendar reform were undertaken early in the present century. He pointed out, particularly to the international scientific societies, that the calendar is perhaps the most widely used of all systems of weights and measures. It is used by everyone, he said—not only by leaders and learned people, but by even the most obscure individuals. It is used all the time, in all daily activities and arrangements. No important action is undertaken by anyone, no engagement planned, no private or public event recorded, no letter written or received, without consciously or unconsciously using the calendar.

If, then, the calendar plays such an important role in human affairs, there is every reason that it should be as perfect a measure as possible, balanced, orderly and stable. We divide the year into twelve parts, which we call months: why should the length of these months vary all the way from 28 to 31 days? We divide the year into four quarters: why should the length of these quarters vary from 90 days to 92 days? We do not tolerate such variations in our clocks and our systems of measurement: why, then, should we continue to tolerate them in the calendar?

Professor Eginitis went back into the pages of calendar history to find the reasons for these inequalities and inefficiencies. He became one of the world's outstanding authorities on the history of the calendar. He found the origin of our modern calendar in Egypt, more than 6000 years ago. Egyptian astronomers discovered the solar year which embodies the secret of the recurring seasons, and adapted their primitive local systems of time-measurement to it. Knowledge of the regular and orderly recurrence of the seasons was of inestimable value, because it made possible the regulation of man's agricultural activities. It made possible the development of Egypt into a strong and independent nation, ruling a vast empire.

It was the Egyptians, too, who established the division of the year into 12 months. All their months were of precisely 30 days, and they had

no weeks. After 12 months of 30 days each, they added enough extra days at the end of the year to bring its length into exact agreement with the sun's year of 365 or 366 days.

Professor Eginitis delved into the calendars of ancient Greece—and found these a vast and complicated study. For the old Greek city-states were highly individualistic, and their calendars were as varied as their political creeds. There were local calendars, farmer calendars, sailor calendars among many others—all different, so that hundreds of various systems of measurement were in use. However, as time went on, the disadvantages of this disorder became evident, and the Greeks began to use more and more the official Egyptian year with its seasonal and monthly divisions. It was the ancient Greeks who gave to the days the names of planets, mainly because they held the view that every period of time had a heavenly body as its ruler. This belief survives in the names still used in many languages for the weekdays, such as Sun-day, Moon-day, Mars-day, Mercury-day, Jupiter-day, Venus-day, Saturn-day.

The supremacy of the Egyptian calendar held the civilized world for many centuries, until the rise of Rome under Julius Caesar. When Caesar decided to give Rome a new calendar, he called in eminent scientists and told them to see what they could do in the way of perfecting the Egyptian calendar into an even more efficient and accurate method of measuring and recording time for the Roman people. Under the leadership of the great Egyptian astronomer, Sosigenes, the new calendar was formulated. Professor Eginitis, had he lived, might have become a modern Sosigenes.

Caesar's calendar naturally retained the division of the year into quarters and into 12 months. An awkward feature of the Egyptian calendar, however, had been the five or six year-end days which had to be added every year at the conclusion of the 360 days of the twelve 30-day months. Caesar's advisers recommended that these five or six days be evenly distributed through the year, thereby removing the disadvantage of a long stretch of holidays.

Another unscientific feature of the Egyptian calendar was the fact that the extra day of leap year was inserted intermittently, being put in by official dictum whenever the state astronomers directed it, on the basis of their observations of the sun. Caesar decided to reduce this haphazard arrangement to a definite and regularized mathematical rule. So he introduced the "leap-year regulation" which prescribed that an extra leap-year day should be added to the 365-day year every four years, to be placed at the end of February, then regarded as the last month of the year. This, then, was the calendar which has since been known as the "Julian," after its imperial founder. Still the calendar knew no weeks.

It was fully 300 years after Caesar's time that the weekdays came into the calendar, as a result of the advance of Christianity into the world. The

7-day week, with its provision of one religious day of rest, created a new complication in the calendar, for Sosigenes and Julius Caesar had never visualized any such division of time.

It is the 7-day week that is causing many of our present-day difficulties with the calendar. Because the 7-day unit is not exactly divisible into the year, our weekdays shift constantly in their position in the various months, making it impossible to establish accurate comparisons between any given period in one year with the same period in previous years.

The problem of adjusting the weekday sequence was a question that stirred Professor Eginitis's attention and interest. He felt that a new calendar, which would make the weekdays come in a similar order year after year, would be a great boon to the human race. And so when he had found a proposal for calendar reform which met this requirement, he decided to devote his time and energies to its promotion and advancement.

It is hardly necessary to speak lengthily regarding the calendar reform instituted by Pope Gregory XIII in 1582. Its main object was to correct an error in the leap-year rule which Julius Caesar had adopted. The present purpose is to indicate the method by which Professor Eginitis hoped to remedy the anachronisms and inefficiencies of the calendars now in use throughout the world, whether Julian or Gregorian.

The main lesson that he drew from his studies into the history of the calendar was this: that the calendar never has been static, but from the earliest beginnings of man's consciousness of time, it has been a slow growth, an evolutionary affair, in which each change has been made in response to the demands of an expanding civilization. The calendar has progressed as mankind has progressed. There has always been, among men, a natural human urge for the perfection of an adequate system of counting, measuring and recording—whether of money, or linear, or time measures.

Improvements in the calendar which Professor Eginitis regarded as inevitable at this particular period of the world's development were: the correction of the constant changeability of the weekdays, the equalization of the length of quarters and half years, and the establishment of complete comparability between time units, year after year. That these improvements can be made without serious upheaval or inconvenience is evident if one follows the arguments presented by Professor Eginitis at various times during his leadership of the calendar reform movement.

The outstanding innovation in his plan was the setting aside of the 365th day, the last day of the year, as an "extra Saturday," naming it Year-Day or Year-End Day. The use of this device stabilizes the calendar and makes it perpetual—every year the same. The calendar for every year is identical, with the year beginning on Sunday.

The only other change suggested by Professor Eginitis was a slight adjustment in the length of certain months. The first month of each quarter is to have 31 days, the second and third months of each quarter, 30 days each. Thus January has 31 days, as at present; February is lengthened to 30 days and March shortened to 30 days. April will have 31 days; May, 30, and June, 30. July will retain its 31-day length, but August will have 30 days, exactly the same as September. October will have 31 days, while November and December will be 30 days each. By this method, the 364-day year is divisible into equal halves and equal quarters, instead of the awkward situation which now exists, whereby the half years are 181 and 184 days respectively, while the quarters vary in length from 90 to 92 days. Under the calendar revision proposed by Professor Eginitis, the quarter divisions of the year always contain exactly 13 weeks, exactly 91 days, exactly three months.

CHILE'S OFFICIAL ACTION

By ALEJANDRO SERANI

Minister of Labor

THIS Ministry has carefully studied the project of the perpetual calendar advocated by The World Calendar Association of New York, and by the former Director of the Chilean National Astronomical Observatory, Dr. Ismael Gajardo Reyes, President of the Latin American Association for Calendar Reform.

This Ministry finds such a project very advantageous, as it involves relatively few changes in comparison with the Gregorian Calendar, at present in use by all civilized nations. The project proposes that every year shall begin on Sunday; the days of the week to fall every year on the same dates; the Easter date, which has at present an oscillation of 35 days, to fall on a fixed date, thus rendering the other religious holidays also immovable; every month to have 26 working days; the quarters and semesters to have the same duration, each quarter beginning on Sunday and ending on Saturday. These reforms are made with so slight a change that the transition from the present calendar to the new one will be almost unnoticeable.

This Ministry finds this reform of such manifest convenience, both for commercial life and business, as well as for the welfare of the working class, that it represents an advantage of great benefit to all nations, such as has been the case in the past with the adoption of the decimal system, standard time and daylight saving, or any other improvement in the systems of weights and measures, international exchanges, etc.

In consideration of all these facts, this Department has the honor to request the Ministry of Foreign Relations to recommend this project to the consideration of the League of Nations, issuing instructions for the Chilean Delegation in Geneva to favor this project before the League.

DISCUSSION OF LEAP WEEK

By P. W. Wilson

Formerly Member of British House of Commons

AT the Dayton Conference of the Federal Council of Churches, held in December, there was a valuable and instructive discussion of what is meant by calendar reform. By an important decision, the Federal Council accepted the principles of The World Calendar, and the occasion was a subject of comment in the press. Whereupon a number of distinguished Rabbis of the Jewish Community sought an opportunity of stating their position. In response to their request, an invitation was given them to appear before representatives of the Federal Council in New York City.

The tone and temper of the discussion was a welcome contrast to what, a few years ago, was the attitude of some calendar reformers towards the opposition of Seventh Day Adventists, certain Jewish and other minorities. It was with the utmost respect and sympathy that agelong beliefs, observances and susceptibilities were taken into careful consideration.

A problem has to be solved and it is well that the problem be clearly understood. The purpose of what follows is not controversy but a friendly and cooperative approach to what, after all, is a situation in which there is a common interest.

For thousands of years, the Jewish community throughout the world has been honorably associated with the calendar. It is to the Jew that mankind owes the Sabbath—that merciful provision of one day rest in seven which has become an industrial right as well as a spiritual and cultural privilege. Nor would it be easy to mention any contribution to health, to sanity, to happiness more beneficent for people of all races and religions than the Holy Day in every week. Any attempt to eliminate the Holy Day, whether of the Jew, the Christian or the Moslem, from any week anywhere, will be resisted by all who have ever advocated The World Calendar. As a trustee of the Rest Day for Man, universal and never to be interrupted, the Jewish community deserves the unshaken support of all reasonable and responsible people.

The Jewish community is also a factor of importance in the promotion of international brotherhood and, within the range of its influence, this community stands for peace. Of that inter-racial and inter-religious solidarity—the ability of man, despite all dissensions, to work out a destiny that shall be of common advantage to all mankind—calendar reform is an expression, and it may prove to be a very significant expression.

The inclusion of trusted Jewish leaders within the developing comrade-

ship of calendar reform is thus a consummation devoutly to be wished, and three questions arise. First, what is agreed? Secondly, what differences await discussion? Thirdly, what is the larger issue involved?

Over what would be the perfect calendar, there is no debate. Everybody is of but one opinion that, according to logic, there should be one calendar for this planet, in which every year, every quarter, every month, every week, every hour, every minute and every second, respectively would be of uniform length. Indeed, zealous exponents of the decimal system might be tempted to add that all these divisions and subdivisions of time should be related to one another by multiples of ten so that everybody would be able to count the clock on his fingers!

The Hebrew Scriptures have taught us, however, that we have to live in the universe which God created, that God is above all systems and sovereign over all uniformities. It is not He Who fits into our scheme. It is we who have to fit into His scheme, and the Calendar is an adjustment of time, as we understand time, to His arrangement of the sun in the heavens and the stars in their courses.

That adjustment is, even today, far from perfect, and in his dealings with the Eternal, the spirit of man will not rest satisfied until perfection, so far as he can conceive of it, swallows up imperfection, nor is there anything in Hebrew annals that tolerates an ideal less exalted than this. The Scriptures—Law and Psalm and Prophecy—are an everlasting Magna Carta of the Best that man in his most exalted moments can ask or think.

The Jewish people are not to be held responsible for the anomalies and irregularities of the Gregorian calendar. No religious community—Jewish, Christian, Moslem, whatever it be—has a reason for upholding what originated in the Paganism of a Roman Empire that has disappeared. A proposal to arrange the months of the year according to simple commonsense—to get rid of a February with 28 days and other absurdities—challenges no faith and wounds no feeling. Everybody—according to the measure of his interest in the subject—favors such an adaptation. Nobody—up to this point—has any reason to be against it.

Over the simple arithmetic of the year, there is little room for argument. Here it is a question, not of opinion, but of the multiplication table and, with clear logic, Rabbi Moses Hyamson, who has devoted years to this problem, sees what is mainly important to calendar reform. The workable year must consist of 364 days or 52 weeks of seven days, and four quarters of 91 days. Within the quarters, the months of 31, 30, 30 days—included in the World Calendar—would correspond.

There is one difficulty and only one difficulty to be considered. Some may think that the difficulty is of great importance. Even they must admit that it stands alone. That difficulty is the length of the year.

The astronomical year consists of 365¼ days approximately, and a

calendar year of 364 days thus falls short by 5 days in 4 years. According to the present calendar, there is one day added for three years and two days added for the fourth or Leap Year. In a World Calendar, how would those extra days be accounted for? That is the question over which the Jewish Rabbis express a genuine concern.

The position may be explained, perhaps, by a simple illustration. Suppose that a person lives in a house that has one clock. It cannot be regulated and it gains just one minute a day. It has thus a tendency to go fast. How should such a clock be adjusted to astronomical time?

One plan would be to let the clock run on, say for a month, and then stop it for a half an hour. Another plan would be, every night, to stop the clock for a minute. Which plan would be best?

Obviously the second. By adjusting the clock every day, its error is kept strictly within one minute, and one minute is not much of a deviation from scientific punctuality. But a clock that may be 10 or 20 or 30 minutes fast, is seldom in accord, even approximately, with correct time. For catching trains and keeping appointments, it has ceased to be an exact instrument of workaday chronology.

The calendar is a kind of clock and if the year in the calendar consists of 364 days, it means that the clock goes fast. It gains 5 days in 4 years and has thus to be adjusted to astronomical time. The question of the calendar is thus identical with the question of the clock—is it to be set right at long intervals or is it to be set right at short intervals?

A plan to which Rabbi Hyamson draws our attention, consists of an adjustment of the calendar, not each year, but after a term of years. This plan requires either a Leap month, so-called, or a Leap week.

First, let us look at the Leap Month. If 5 days are gained in four years, it follows that, in 28 years, 35 days will have been gained. It is thus suggested that, every 28 years, there should be inserted in the Calendar a month of exactly 5 weeks; and let us see how it would work. At midnight of December 30th, the last day of the new Calendar year, there would begin—not January 1st, but Leap Month 1st; and only at midnight of Leap Month 35th would January 1st commence.

All of us are aware that it is difficult to set a watch by the sun dial or to tell the time on the seashore by the tide. This plan of saving up days for 28 years would be a similar separation of the calendar from solar time. A clock that has stopped entirely is at least right twice a day. This calendar would only be right three to four times in a century.

Its error would accumulate to a maximum of no less than 35 days—and we do well to consider what such an error would mean. In 1582, the calendar—previously arranged at the Council of Nice in 325 A.D.—was 10 days ahead of the vernal equinox. That error was less than a third of 35 days. Yet Pope Gregory XIII thought that it was sufficiently serious

to be corrected. According to the proposal for a Leap Month, the calendar, eight years after each correction, would show an error greater than that which, in 1582, had accumulated in more than 1200 years and at the adjustment, a year of 364 days would suddenly become a year of 399 days!

An alternative plan provides for a Leap Week. The extra days accumulate, year by year, until a complete week has been obtained. That week is then inserted—like Leap Month—between December 30 and January 1.

The magnitude of the maximum error in this case is less than 35 days. But it is, in fact, as serious. A day is added for every ordinary year and two days are added for Leap Year, which arrangement works out in more than one way. Take the following progression:

$$1 + 1 + 1 + 2 + 1 + 1 = 7 \text{ days}$$

The week is there accumulated in 6 years.

But let us put the progression thus:

$$1 + 2 + 1 + 1 + 1 + 2 = 8 \text{ days}$$

In this case, six years yield 8 days, not 7, while five years would only yield 6 days. We have thus to run on to a second week thus:

$$1 + 2 + 1 + 1 + 1 + 2 + 1 + 1 + 1 + 2 + 1 = 14 \text{ days}$$

It thus requires 11 years to obtain a complete week or weeks and, in fact, two weeks are required to adjust the calendar, not one. Thus the years, corrected by Leap Weeks, would be of three alternative durations—364 days, 371 days, and 378 days.

There have been measures taken with a view to eliminating the variable Easter. The Leap Month and the Leap Weeks would involve variations far more inconvenient than Easter has been in their effect on human life. The solstices and equinoxes, as solar anniversaries, would vary by as much as 14 days, and the nautical almanac would be thrown into a confusion that might be a danger to shipping.

It is no merely personal opinion that the Leap Month is fantastic and that the Leap Week is impossible. In 1931, the League of Nations, after full consideration, issued a report on calendar reform in which this particular device was described as "inferior to the existing calendar." It was added that such a plan "cannot be considered at all." The verdict must be accepted as final.

In The World Calendar, the adjustment of the year is annual and no large error is allowed to accumulate. There is Year-End Day annually after December 30th. There is Leap Year Day, quadrennially, after June 30th. The discrepancy between calendar and astronomical time is thus kept within the irreducible minimum which is possible according to the essential circumstances of the case. It will thus be seen that there must be some reason—which he holds to be a strong reason—why Rabbi Hyamson

prefers a Leap Month or a Leap Week to a Leap Day. About that reason, there is no mystery. He holds that Leap Day changes the progression of the weeks and so interrupts the continuity of the Jewish Sabbath.

There are those who, greatly daring, have argued that a passage in Leviticus—XXIII 15-16—reveals Moses as a calendar reformer. Does not the language suggest that the law-giver treated seven weeks as 50 days and so introduced a Year Day into the Hebraic festivals? The passage is carefully explained by Rabbi Hyamson in a different sense. Still, it does not appear entirely to exclude such an interpolation of a day. In any event, it gives the impression that there cannot be anything of moral obliquity in such an inserted day.

Time—as a great and highly honored Jew, Albert Einstein, has made clear—is by no means so simple an element in existence, whatever our existence may be, as we are apt sometimes to suppose. Let us suppose that a man uses one of the weeks of his life in order to fly round the world. If he flies east, he reduces 7 days of his life to 6. If he flies west, he extends 7 days of his life to 8. Yet it would be difficult to suggest that such a man, giving thanks in a synagogue for his safe return, was failing to keep the Sabbath merely because, for him, the Sabbath had ceased to be a seventh day in his calendar.

Let us imagine for a moment that the whole world fell asleep one evening and did not awaken until the day after tomorrow. Would this mean that the God of Abraham, of Isaac and of Jacob would withdraw the shadow of His wings from those who are, in body and soul, the children of Abraham? What is it in the synagogue that has endured through the ages? What are the depths of emotion, of loyalty, of faith, of worship that, through the centuries, have inexhaustibly sustained this society of man for whom is reserved some destiny yet to be fulfilled? Surely they are not to be measured by a detail of chronological exactitude.

The learned Rabbi has insisted that the word Sabbath does not signify only a day of rest. It signifies Rest itself and the principle of Rest thus emphasized by Hebrew tradition, is no outworn principle. We have today the five-day week. That short week is not destroying the Sabbath. On the contrary it is associating Jew and Christian in a double Sabbath, human and divine, which both are able to celebrate in unison.

And so with the Year and Leap Days. These also are days, not withdrawn from the Sabbaths of the Year but added unto them. They are among those Holy Days which man may use as holidays.

According to The World Calendar, in so far as it affects the matter at all, the Jewish Sabbath is set in a strategic position. It remains what it has been—the day on which every week ends. It becomes the day on which every quarter ends. More important than all, it becomes the day on which

every year ends. The place of the Sabbath in such a year is impregnable.

No ecclesiastical organization is more sensitive over ritual and times and seasons than the Roman Catholic Church. No organization has to consider a more bewildering complexity of festivals. In dealing with the calendar, the Church has displayed caution. But she has been more than careful to refrain from attaching faith to dates. Eternity, not time, is, as all mystics are assured, the measure of religion.

Through all ages, the Jewish people have concentrated their minds on life itself. That has been the glory of the Hebraic mission—life and home and happiness defended against the oppressive encroachments of power. If it can be shown that calendar reform guarantees 52 fixed Sabbaths in the year and safeguards those Sabbaths within every year, and if this acceptance of the Sabbath can be extended as a blessing to all mankind—might it not be worth while for the guardians of the Sabbath to consider this opportunity of leadership along the path of well-being for all people?

NOTES FROM CALENDAR HISTORY

By A. K. Clevenger, *Civil Engineer, Claremont, Va.*

DECISION between the various proposals for calendar reform is a comparatively easy matter for anyone who realizes one clear lesson of history—that all true progress comes from gradual change. The only practical change in our calendar is one which proposes no undue upheaval.

Delving into calendar history, I have been particularly interested in the question of when the calendar first became public property. We know, for instance, that for thousands of years the priests guarded it as one of their most valuable secrets. They kept the records of the heavenly bodies and the time measurements which came from these records, as the sole property of the temple. Rulers and statesmen, merchants and farmers, had to consult the priests when they wanted to know about future dates—when to travel, marry, plant, hunt, and so on. The temple doled out the lucky and unlucky days, cast horoscopes, kept family records, measured days, weeks, months, quarters.

Only gradually did the calendar emerge from a mass of weeds which had grown up with it, weeds that were superstition and sorcery and augury and conjecture.

Perhaps the first group to become "calendar wise," outside the priesthood, were the Roman lawyers, who were a species of left-handed priests handling all the "unholy" or civil matters of law, as distinguished from matters of the "holy" or temple law. Their clients consulted them to ascertain the proper days for commencing law suits.

The secrecy of the calendar had lasted a long time. But finally came the dawn. Sometime about 315 B.C., Cneius Flavius, son of a freedman and scribe to Appius Caecus, the edile, conceived the idea of making the law calendar public. He struck off copies of it and hung the copies around the forum, white tablets which stirred up such public interest that Flavius was made a praetor, the first freedman to be thus honored. The lawyers set up a great hue and cry, fearing that the publicizing of the calendar would ruin their business. But the calendar was out of the temple to stay. The blow that this democratization of time dealt to the patrician classes was noted by Livy, who spoke of the reward given to Flavius as an indication of how "a faction of the lowest people is gathering strength to destroy sacred things."

SO THIS IS NEW YEAR'S

By The Reverend Edward S. Schwegler, D.D.

Assistant Pastor, Church of St. John the Evangelist (Roman Catholic), Buffalo, N. Y.

(From Columbia Magazine, January, 1935)

THE subject of New Year's day is one of those things that are pounced upon by persons who draw "Believe It Or Not," "Strange As It May Seem," and similar cartoons. There are several facts connected with this festival that are simply irresistible to such people; and year after year you will find a reference to New Year's day in their drawings.

One of the curious facts often paraded for the astonishment of unsuspecting readers is that New Year is not always and everywhere on January 1. This is proved by a list of half a dozen or so instances.

But in the present paper it is proposed to nonplus the cartoonists themselves. For it is to be shown that, in the course of history, and in various places at present, the new year has begun not merely on different dates, but throughout the year, and in every part of the year.

The ancient Egyptian New Year was in the middle of July, at the time when Sirius, the dog-star, could be seen in the morning twilight, and the Nile was rising with the flood waters. Among the Egyptians' neighbors, the Babylonians, the first of the spring month (March-April) was New Year's, although some of the cities in Babylonia celebrated the opposite date—the first day of the autumn month. These facts probably explain why the Jews originally celebrated two New Year's days: one on the first day of the seventh month, Tishri (September-October), and the other on the first day of the first month, Nisan (March-April). These days, of course, varied in their calendrical date because the Jewish months went along with the moon. Nowhere in the Bible, however, are these days expressly mentioned as New Year festivals, although they were signalized by special sacrifices and the absence of servile work.

Later on the Jewish rabbis recognized four New Year days in the year: the first of Nisan for dating purposes; the first of Tishri, the beginning of the harvest; the first of Elul (August-September) for tithe reckonings; and the first of Shebat (January-February), the "New Year for Trees," which had the especial purpose of marking the fruit tithes. Of all these days, the first of Tishri stands out as the principal New Year feast, since it is supposed to mark the anniversary of beginning of creation. Today also the Jews celebrate New Year's day in this autumn month.

Followers of Zoroaster, including certain of the present-day Parsees in India, observed the time of the spring equinox (March 21) as New Year, and are fairly exact in their celebrations owing to a correct calendar. Certain sects of the Parsees, however, have not observed such exact calendar

calculations, with the result that they now find themselves celebrating New Year's in September.

The ancient Olympic year among the Greeks began on July 1. An old Macedonian year began September 1. The pagan Irish seem to have begun their year on February 1, which marked the beginning of the spring season. The festival was called originally *oimelc*—ewe-milk—for "this is the time that the sheep's milk comes." Later February 1 was known as *Feil-Brighde*—St. Brigid's feast day. Throughout Ireland this is still the designation of that date.

The Romans at first had a year of ten months and began it on March 1—whence we have the relics of September, October, November, December, or the seventh, eighth, ninth and tenth months (Latin, *septem, octo, novem, decem*). Such, at any rate, is the tradition.

In the Middle Ages there was a fine tangle over New Year's day. First of all, the Abbot Dionysius, in the sixth century, worked out a chronology that began with the birth of Christ: and he therefore started his years with the feast of the Annunciation, March 25. This day he probably chose because it marks the beginning of Christ's existence on earth, and so of the Christian era.

There gradually grew up two styles of March 25 New Years: one, known as the Florentine, considered the year to begin with the 25th of March *after* January 1; the other, called the Pisan style, chose as New Year's the 25th of March *before* January 1. The Florentine style was the more widespread. It was used in northern Italy till 1749, in southern France during the 11th, 12th and 13th centuries, and in England from 1066 (coming of the Normans) to 1751 (introduction of the Gregorian calendar). Naturally, the same style was used in America up to the same date. The Pisan style was confined to Pisa and to the papal domains of the twelfth century.

Other medieval people thought the year should start on Christmas; and so, in various parts of Germany, for example, New Year's was December 25. The same was true of Spain until the sixteenth century.

In Venice till the time of the Republic, and in some parts of France under the Merovingians, the year began on March 1. March 21, the spring equinox, marked the first of the year in Russia from 1500 to 1725. August 11, Feast of St. Tiburce, was New Year for some time in Denmark. The French, during the Republic, made the beginning of the year coincide with the date of the autumn equinox, September 21.

But the finest farrago of all was had in medieval France, parts of Germany, and the Low Countries, where the new year began on Easter. Now Easter, as we know, can vary by thirty-five days (March 22 to April 25); therefore the year might have eleven, twelve or thirteen months, and from 330 to 400 days; it might have the same dates of a certain period twice

and not have other dates at all at another time. The custom of using Easter for New Year goes back as early as the ninth century.

It was only in comparatively recent times that there was anything like unanimity among the western nations concerning New Year on January 1. This unanimity dates at the earliest from the sixteenth century.

Yet even with the common use of January 1 to open the year, there was still a difference between East and West. The former used the Julian calendar; which, being ten or eleven days behind the Gregorian, produced for the Orientals after the Gregorian reform in the sixteenth century a new year around January 10. Today those schismatics who still follow the Julian calendar celebrate New Year's on January 13.

Various of the Hindus in India, Siam and the Straits Settlements begin their year on April 12. The Chinese have a New Year that "wanders" like our Easter. It is the day of the second new moon after the winter solstice, December 22. New Year's may therefore be anywhere from January 21 to February 19 according to the traditional Chinese reckoning.

Doubtless one would also discover many other dates as he examined into the different tribes of the earth and the various periods of history; and so it could be literally true that, even with a fixed solar date, New Year's as calculated at all possible times and places has been celebrated in every month of our year. But if there is any doubt of this possibility, here is the crowning take-it-or-leave-it, believe-it-or-not fact in the whole series. The followers of Mohammed have a strictly lunar year, which is ten and a half days shorter than the Gregorian year. The Mohammedan New-year, therefore, travels all through our year and may occur in any one of our months.

And with that we will rest on our laurels, and consider ourselves as having out-Ripleyed Ripley.

But why should we, the civilized inhabitants of the West, be so unanimous about January 1 as New Year's? Who first settled on that date, and why? It really is not the beginning of anything at all. It is nine days after December 22, the solar beginning of winter, and a whole month after December 1, which in northerly climates is usually regarded as the more or less seasonal beginning of winter. So why was January 1 chosen? It might have been more appropriate to choose, let us say, some date in March or April, when there is a rebirth of plant life, a growing amount of heat and life, a revival of greenery and color, a real *beginning* of things.

It is to be feared that no one can answer these questions. Old King Numa of Rome (715-672 B. C.) seems to be the culprit responsible for the present state of affairs; but just why or how he acted as he did is a question. He must, as one writer thinks, quite arbitrarily, in the fullness of his kingship, have made up his royal mind one day that the Roman year needed two more months (you remember it originally had only ten) and

that one of these should be the first month of the year. That first month he called January, after *Janus;* which matter of nomenclature, unlike the choice of the day, was a very sensible proceeding, for Janus was the Roman god who presided over all beginnings and was called upon in all new undertakings. He was represented as having two faces and as holding a key in one hand. And then, of course, the first day of that first month, January, became the festival which we call New Year.

Some authorities, though, frown upon this rather arbitrary explanation of January 1 and come forth with a very scientific exposition of the facts. They tell us that when Julius Caesar reformed the Roman calendar (45 B. C.) and made it entirely solar (before this time it had gone along more or less with the moon) he wanted to start the year precisely at the winter solstice, December 22; which would have had some sense to it; for, as we have noted, the solstice marks the day from which the sun begins to climb in the heavens and sends us more and more heat and light. But—continue our authorities—the Romans had been used to a New Year that coincided with a full moon; and Caesar was afraid to introduce too many innovations. He therefore placed the new year at the first full moon after the winter solstice in the year 45 B. C.; which, as it happened, was nine days after the winter solstice, or January 1, and to this fact, that the new moon in 45 B. C. occurred on January 1, astronomical science, we are informed, bears witness.

But despite all this formidable reasoning, it remains a fact that New Year's in Rome occurred around January 1 long before Julius Caesar was born, and that the very appropriate dedication of the first month in the year to Janus antedated him by at least several centuries. So we will leave this question to the scholars.

Yet we may make one statement on the subject without fear of contradiction: with January 1 as the New Year one personage that should be very interested in the matter has had nothing to do whatsoever. That personage is the Church. Not only is she not worried about New Year—she pays not the slightest attention to it. She has never taken kindly to the festivity of the day, and does not recognize it in her official calendar. If there is any ecclesiastical New Year's at all, it is around the beginning of December, on the first Sunday of Advent. Since about the ninth century January 1 is commemorated by the Church as the Circumcision of Our Lord, and in the whole liturgy for the day there is not a word about the new year. Originally the day was known as the "Octave of the Lord" and was not looked upon as being of any special importance at all.

Why this indifference, or purposive ignoring, on the part of the Church? The reason is that she found New Year to be an altogether pagan festival, incrusted with pagan superstitions. Of course, she found the same thing to be true of other festivals—notably of Christmas, which coincided with

the conclusion of the Roman Saturnalia, with the feast of a later Roman sun-god, and with a number of other pagan feasts revolving around the winter solstice. But in cases like this the Church evidently saw an opportunity to purify the obnoxious festivals and eliminate from them the taint of paganism before taking them over. Also, she saw in them some natural fact or connection that made them appropriate independently of their pagan significance. This was true, again, of Christmas, since around December 25, the time when the sun of our solar system begins to emit more light and heat, was a most fitting season in which to celebrate the birth of Him who was to be the Light of the World.

Such an evident and natural relationship did not exist between the secular New Year and its corresponding place in the Church calendar. And the Church must have feared that the day could not be separated from its pagan significance and practices. Among the latter were games, dances, mummery, fortune telling, the giving of gifts, and various other manifestations of rejoicing. Fortune telling would of course stand condemned at once on its own merits—or demerits. The giving of gifts was probably frowned upon because the presents were considered as omens of success for the future, and as such possessed a certain superstitious tinge. Besides, these gifts, the ancient *strenae*, recalled the worship of an old Sabine goddess, *Strenia*, and therefore were a direct echo of idolatry. Going about masked was a pure relic of paganism, though of what particular significance it was at New Year is not clear.

Nor can the seemingly innocent and exemplary New Year resolutions escape the accusation of superstition. The fact that the Church has never officially accepted the custom would seem of itself to throw some suspicion upon it. Perhaps the reason may be found in the conclusion of a modern commentator: that New Year's resolutions are "the pale ghost of the tremendous 'fixing of destinies' which was carried out at the Babylonian New Year's festival." (S. H. Hooke.)

But whatever the explanation may be, there can be no doubt about the Church's antipathy to New Year festivities. Old missals have a Mass for this day entitled *Missa ad prohibendum ab idolis*, "Mass to Ward Off Idolatry." Various saints and bishops inveighed against the New Year revelries, most outstanding among whom was doubtless St. Peter Chrysologus (d. 450). The Roman Breviary says of him approvingly (Lesson V): "He condemned in very acrid sermons the revelries and dances indulged in by masked persons on January 1; and in these sermons, among other things, he gave forth the following excellent apothem: 'He who would play with the Evil One, cannot rejoice with Christ, the Son'." Around the times of Peter of the Golden Word, January 1 and the two following days, or the days before and after, were observed as days of prayer and fasting, to expiate for the unholy revelry that went on during this season. In the tenth century the inquisitors were instructed to ask persons suspected of heresy what they had done on New Year's day. In short, there can be no doubt whatsoever that the Church looked with no favor upon the celebration of New Year.

No one familiar with our country need be told that we Americans indulge in festivity and revelry at the time of the New Year with as much zest and recklessness as any jolly Roman ever thought of displaying. It is to be feared that if good Peter Chrysologus were living at the present day, he would be satisfied with nothing less than a national hookup on New Year's Eve. And he would have plenty to talk about. There is no New Year's celebration quite so heedless and boisterous as ours.

MOVING TOWARD EFFICIENCY

By A. J. Hills

Chief of Personnel, Canadian National Railways

(Written for the National Office Management Association)

PROPOSALS to make the few changes required to convert the present calendar into one which will provide a fixed and efficient base for calculations and comparisons will naturally interest members of the National Office Management Association. The Association's membership, composed as it is of those who are giving study to time-saving devices, scientific methods of doing work, and the measurement of office production, must be fully aware of the imperfections of the present calendar and will want to obtain the advantages to be secured by a rational modification of it.

The greatest boon which a new calendar could bring would be stability. The greatest defect in the present calendar is its instability, caused by the shifting each year of the relationship of dates in the month to days in the week. This trouble is due to the fact that the earth in its passage around the sun runs a day and a bit too slowly.

If the earth, without disturbing the universe, could speed up so as to get around the sun in exactly 364 days everything would be fine. There would be 52 weeks in each year and no extra day and a quarter to muss things up. We could start a year on Sunday, January the first, and go to Saturday, December 30th, and be all ready to start another year on Sunday, the first of January. The same calendar would do for every year. The present flimsy paper calendars would be replaced by beautiful permanent ones. No one would have trouble remembering his wife's birthday or his wedding anniversary because a date once established would always come on the same day of the week and you could mark on your perpetual calendar any red letter day you wished to remember and the mark would always be there.

Christmas Day then would always come on Monday. Every holiday would have a fixed place and those holidays that are really worth while which do not come at a week-end would probably be changed to the most convenient Friday or Monday.

But, some one asks, "Why bring all this out when there's no chance of speeding up the earth to make the required schedule?" Ah, it is another case of solving a difficulty in a practical manner, as Mahomet did when the Mountain would not even meet him halfway. If the earth cannot make the required schedule in 364 days, let the earth make it in 365 days, 5 hours, 48 minutes and 46 1/7 seconds as it does now—but we will only schedule

364 days. Let us commence our year on Sunday, January 1st, as we did in 1933, which will in due course bring Xmas Day on Monday, and when we get to Saturday, the 30th of December, we will tie up to that Saturday for one day and 24 hours, and while we may call the first day Saturday and the second 24 hours another day, probably Year End Day, we will not let anything interfere with starting the New Year on Sunday again. It is by starting the year on the same day of the week every year that fixity of all dates is obtained.

As is well known, they have it all figured out that the 5 hours, 48 minutes, 46 1/7 seconds—referred to approximately as a quarter day—can be absorbed by putting in a leap day every four years, except in Century years, unless the first two figures of the Century year can be divided by four. I am assured that there is nothing to worry about in this respect. We can safely leave this to the astronomers. This leap year day every four years or so must not be allowed to disturb our 364 day schedule. It means tying up for an extra 24 hours again, which all seem to agree should come after Saturday, June 30th, making a nice long week-end in midsummer. This extra day would be called Leap Year Day.

I should be afraid of this apparent concession to the workers by throwing in these "stabilizing" days in places which mark them as obvious holidays, were it not for the quite pronounced feeling that there is over-production. I feel, therefore, that we may accept this feature of the plan without hesitation.

Here then we have our fixed calendar—every year the same—365¼ days as before but only 364 are to be included in the regular schedule. One day at the end of each year will have no week day assignment and likewise a second day in every leap year. The remaining 364 days form 52 weeks. Every date has the same relative position and the same week day assignment every year.

"Is that all there is to it?" asks some one. To this I should say as the locomotive foreman does when an engine comes in for a new set of tubes: "There's a few more things we want to do to her when we've got her in the shop."

While the day shifting habit is our calendar's worst fault, it has others. *The quarters of the year are at present unequal.* The first quarter has 90 days, the second 91, the third 92 and the fourth 92. In England and some other countries where they have half-yearly leases this causes some inconvenience, as the rental to end of June for 181 days is not the same as the second six months which have 184 days. In our utopian Calendar we shall have four even quarters of 91 days each.

Other faults are that *the months have a varying number of working days and one can never tell whether a month will have five Sundays or four.* Both these faults and the previous objection can be overcome by

evening up the months, in series. You have seen it stated that Julius Caesar had the days of the month very nicely arranged. Commencing with March, then the first month of the year, 31 and 30 day months alternated in the Julian Calendar as follows: 31, 30, 31, 30, 31, 30, 31, 30, 31, 30, 31, 30. Which made a perfect sequence in Leap Year when February, then the last month of the year, had 30 days. It had 29 in ordinary years. Closely following the establishment of this calendar it was severely jolted. While not a League of Nations, as we know the term, there was a national league of sorts in those days, but it was apparently a one man affair and the Judge Landis of the times, one Caesar Augustus, acted like that naughty legendary Jack of Hearts, and stole a day from February, which month has always been the Cinderella of the calendar. This stolen day Augustus added to the month he named after himself, so that it would be as big a month as July or Julius's. The result was to throw the whole sequence of months out of gear. In an attempt to correct his own interference he tried some other adjustments.

It is proposed to correct these misappropriations of Augustus even at this late date and to give the months a new deal. In the shuffle, February gets more than square by being given 30 days. March loses one day in the cause of balance, April for the same reason gets one. May, like August, loses one. These adjustments give us a perfectly balanced calendar, with each quarter starting on a Sunday and ending on a Saturday, first a 31 day month with 5 Sundays, then two months of 30 days each, the last month in each quarter having 5 Saturdays, each quarter having 91 days. Each month has 26 working days. These changes are all that are necessary to give the earth a perfect working schedule—balanced by quarters—fixed and perpetual. The changes involved require a minimum of adjustment.

There is, it will be seen, nothing radical about these proposals. The calendar thus resulting and recommended to you is The World Calendar. It has the approval of the League of Nations, which favors Calendar reform and the fixation of Easter. The forces behind The World Calendar appear to be making such headway as to assure success.

The only other proposal for a new calendar, out of hundreds that were examined, which has remained in the race is the 13-month calendar favored by the late George Eastman of Kodak fame. Mr. Eastman endowed his crusade for this calendar, but even so it seems fated to be negatived. In the 13-month calendar, a new month between June and July called Sol is proposed. Each of the 13 months is given 28 days, four weeks each month. This would only regularly take care of 364 days so that one day every year and two days in Leap years would have to be intercalated as in The World Calendar.

While perhaps offering some advantages to those who wish to measure

performance only by the week, the disadvantage of another monthly accounting period, or two if a half year period is required, coupled with the impracticability of dividing 13 into quarters, halves, thirds or sixths, the great disturbances to dates, many being eliminated altogether, and the destruction of monthly statistical comparisons, make the proposal appear impracticable. The fixed feature of The World Calendar protects the comparability of weeks, that is, of a week of one year with the corresponding week of the previous or some other year, and meanwhile comparisons of months, even during the period of transition, would not be upset.

Historically there is much of interest relating to the Calendar. Before the calendar of Julius Caesar, however, there was little semblance to our present arrangement. The fact that England did not adopt the present Gregorian Calendar until 1752 or 170 years after the Roman Catholic countries in Europe adopted it is an indication that religious feeling may have an important effect on Calendar reform. Some European countries have only recently adopted the present calendar, notably Greece in 1923.

It is hoped that enough nations will see the advantages of a new fixed and perpetual calendar, which does not disturb established bases of comparison, to have The World Calendar quite generally adopted by January 1, 1939, the next year in which January 1st falls on Sunday, which is the most favorable date for making the change.

It is felt that business conditions of all kinds will be improved by the stability which The World Calendar would bring. Think how it would simplify making out the office vacation schedule. When Miss Tillie Jones has once selected her two weeks in August she can make her dates with confidence that the last day of August will always be Thursday. No more will Christmas come as in 1935 on a Wednesday, which, with New Years following, completely wrecks two business weeks and due to short week-ends curtails railway and other traffic very seriously as compared with years when Christmas comes on Monday.

The varying content of the months as regards number of working days has been mentioned. This particularly affects comparisons of railway earnings, where four periods per month are used. With a fixed calendar good comparability would be insured as between any period of the year and the previous or other years, which is the usual comparison desired.

The World Calendar will give every advantage that fixity and balance can offer and has unmistakable superiority over the 13-month Calendar, inasmuch as no disturbance to established customs is occasioned by its adoption and no additional expense is created, whereas a 13-month year, which would be indivisible by months and incomparable with previous 12-month years, would create additional expense and make unwarranted disturbances in all national holidays.

STUDIES IN TRANSPORTATION

By Gordon Parrish

Editor of The Speedway Bulletin, journal of automotive transportation

PLANS for revision of the calendar are just now being very seriously studied by transportation authorities throughout the world. Railroads, steamship lines, aviation companies, and those interested in automotive transportation by bus, truck or private car, have all been attracted to this subject and are now seeking to appraise the possible benefits or handicaps which might result.

In general, it may be said that the whole field of transportation welcomes the idea of a new calendar which will remove the irregularities of the present one and convert it into a "perpetual" schedule wherein the incidence of the weekdays will be stabilized and statistical comparisons facilitated.

The present writer does not claim to be an authority on the subject, nor can he speak officially for all the varied interests represented in a field so broad and varied as transportation. But he has recently made a somewhat exhaustive investigation of opinion among leading transportation men, who have given him access to a considerable quantity of privately gleaned information and studies, and have talked with him frankly and at length regarding calendar reform. Consultations, interviews and discussions have yielded a wealth of data and information, from which it is possible to make at least this much of a generalization: that the great majority of opinion among transportation leaders is that the adoption of The World Calendar would prove of immediate and lasting benefit to all forms of transportation, especially in three ways—stabilization of holidays, increased accuracy of all statistical information, and simplification of transportation schedules by synchronization of weekdays and month-dates.

Transportation opinion, as gathered by the present writer, can be roughly summarized in percentage figures. For every 100 transportation officials, about 75 were in favor of a revision of the calendar. The other 25 cannot be classified as opposed to calendar reform, because most of them merely withheld any expression of positive opinion, on the ground that they were still too poorly informed. As between the two important proposals for calendar revision—the 13-month plan and the 12-month equal-quarter World Calendar—the percentages were about 80 per cent favoring the 12-month plan and 20 per cent advocating the 13-month proposal.

Irregularities of the present calendar which most adversely affect transportation are: irregularity in length of months, which necessitates awkward and artificial adjustments of statistics; incomparability of

months or other dated periods in successive years; unequal length of quarters and half-years, which creates incomparabilities in financial and other data for these periods; the "wandering" quality of weekdays, holidays, convention dates and other calendar fixtures, which necessitates constant changes in transportation setups and schedules.

The most obvious improvement under a fixed or "perpetual" calendar, from the viewpoint of the ordinary operating official in a railroad, steamship line or bus company, is the fixture of holidays. Under the proposed new calendar, January 1 will always be Sunday, February 1 will always be Wednesday, and March 1 will always be Friday. The same quality of stability holds true of every day in the year. Holidays, such as Washington's Birthday, Independence Day, Decoration Day, instantly become stabilized on a fixed and unchanging weekday.

"For transportation agencies, this means," says an official of the New York Central Lines, "that the special services which are necessitated for these holiday periods can be anticipated in the light of past experience. Under the present calendar, past experience is no guide, for the transport needs of a Fourth-of-July which comes on Friday are entirely different from those of the previous year, when it came on Thursday."

Now, this same improvement under the new calendar, which is so obvious when applied to holiday travel, exists also to a lesser extent in non-holiday traffic. "Commuter traffic, for instance, has wide weekday variations," says a spokesman for the Long Island Railroad. "Saturday and Sunday business is quite different from that of the mid-week period. Monday has a different value to Tuesday. Each ensuing day of the week provides a definite portion of the total week's business, which is unequal to the contribution of any other given day."

This variation in the values of different weekdays has not been observed by transportation statisticians alone, but is recognized by business as a whole. It is the natural result of the tendency of people to plan their purchasing excursions and other affairs on certain days of the week.

The ability to make plans in advance is a factor on which the success or failure of all holiday business rests. Under the present calendar Labor Day is the only holiday upon which the travelling public can depend for a long weekend excursion. For this reason, long Labor Day trips, having been anticipated well beforehand, are made possible, and therefore the Labor Day holiday results in a peak travel and transportation business.

Under The World Calendar every Holiday will occur on a fixed weekday and most holidays will eventually be stabilized on Mondays. This stabilizing factor will enable the public to plan excursions for other festive occasions with the same confidence they are now able to deal with Labor Day. Christmas on Monday and an extra Saturday holiday at the end of December will provide a welcome lengthening of the year-end holidays.

This stabilization alone will be viewed as a great boon to the transportation business, providing ample time for Yuletide excursions which occupy so important a position among the peak travel periods. Easter Sunday, too, will be cured of its "wandering" tendency.

"The undependable character of the Easter holiday under our present calendar is a source of great annoyance to all business, but especially to the transportation agencies," said the Vice-President of a group of western railroads. "Tradition has given Easter a unique position as herald of the spring and its arrival is of course associated with the purchase of new clothing, installation of warm weather fixtures, general freshening up of the home, and the resumption of pleasure-car travel. When Easter falls unduly early, skies are overcast, the weather is bleak and cold, and the impulse to discard winter clothing, purchase light spring apparel and get out the car is considerably weakened." With Easter stabilization on April 8 under The World Calendar, there will be a greater certainty of good weather, merchants can depend on a definite volume for their Easter sales, transportation men can more accurately estimate the amount of travel for which they must prepare, and automobile service men can definitely fix that day as the opening of the pleasure-car season.

Travel by automobile and bus has gradually assumed such an important place in the American transportation systems that the opinions of leaders in this business on the effect of stabilizing the calendar are of high importance. Jay L. Sheppard, Vice-President of the Greyhound Bus Lines, has some definite ideas on this subject. He says:

"Experience has shown us that we may expect the greatest volume of travel when a holiday occurs on Monday. Any calendar revision which makes it possible gradually to stabilize holidays on Monday will certainly prove a stimulant to the transportation business and its dependents.

"The value of the long week-end to motorists and vacationists is obvious. There is little pleasure in the bumper-clicking boulevard excursions to which our Sunday driver city motorists are now confined. A lengthened week-end provides ample time for longer, pleasanter trips and will stimulate the business of gasoline service stations, roadside restaurants, out-of-town hotels and resorts.

"It will, in addition, provide a solution to a problem which is now harassing the big manufacturing plants which are operating on a five-day schedule in accordance with NRA regulations. In great manufacturing centers, for example, the expense of starting and stopping an entire factory for the interruption of a mid-week holiday, say on Wednesday or Thursday, is often too great to warrant reopening for the balance of the week. The resultant shut-down seriously reduces the earnings of employees, and, as far as transportation is concerned, reduces power to travel."

The same arguments apply with slightly different emphasis to passen-

ger transportation by rail and boat, and are reflected in opinions given to the writer by passenger officials of railway and steamship lines. As for freight transportation, it need only be said that this is greatly influenced by the volume of passenger traffic. Freight trains are operated on the time remaining after passenger trains have been accommodated. Trucks on the public highways must make way for passenger traffic and frequently are not permitted to use certain time-saving cut-offs and boulevards. Their whole existence is tied up with the same calendar factors which affect general business.

The ability of transportation companies to deliver the goods *on time* is the factor which frequently determines the volume of business. Consignor, consignee, and the carrier all share in lost profits when delays interrupt schedules of delivery. Aligned against this contingency are arrayed the traffic managers installed by every large merchandising house, manufacturing company and shipping agency and the freight and passenger agents of the transportation systems. The simpler schedules made possible by calendar reform will have both direct and indirect influences on various departments of transport, some of which are not evident until one goes deeply into the problems involved.

Studies by transportation experts are still too incomplete to show all the benefits which will flow from the proposed improvements in the calendar. But the transportation statisticians are already enthusiastic. Their work deals with volumes of records, on all of which the irregularities of the present calendar have certain detrimental effects. These records are in constant use and constitute the background of the business. The most frequent calendar difficulty is that which concerns the varying importance of different weekdays, on the evaluation of which the successful operation of any land transportation system is as dependent as the compass is to the navigator. Despite the importance of these records, their use entails cumbersome approximations, lengthy explanations and constant research to avoid inaccurate assumptions as a result of the irregularities of our present calendar system.

Take, for example, the comparison of business in January of one year with January in the following year. Owing to the difference in value of each weekday, the comparison is invariably difficult. The summation of the business done in a January which has five Sundays can not be compared accurately to the following year when it only has four. The fixed value of Sunday's business, alone, would create a difference in totals requiring approximations and explanations for the purposes of proper comparison. This is a result of the "wandering day" quality of our present calendar.

Next, consider the variation in the length of months. Under our present system, January business can never be compared to February volume

without complex adjustments, because the latter is sometimes two and sometimes three days shorter than January. In The World Calendar not only is this variation fixed but a further and even more important step is taken in the absolute equalization of quarter and half year periods.

Under this plan, each quarter period has exactly 91 days, is of exactly three months duration, begins on Sunday, ends on Saturday, and entirely eliminates the necessity for approximations, adjustments, and allowances by which the use of quarter period comparison statistics is complicated under our present calendar.

The advantage of simplifying the division of the year into equal halves and quarters to coincide with monthly and seasonal periods, is immediately apparent to every accountant, banker, business man and statistician.

This advantage is amplified, moreover, by the facility of navigation computations which it offers to those who use steamship and aeroplane statistics. The value of a fixed calendar to navigation has been pointed out by Rear Admiral F. B. Upham of the U. S. Navy, who referred the whole subject to officials of the Naval Observatory for study. Their report was a unanimous recommendation for the adoption of The World Calendar.

The present writer, in the course of his impartial studies of calendar reform as applied to transportation, has been led to the inevitable conclusions that certain definite benefits—in time, money, convenience and increased accuracy of transportation schedules and statistics—would result. His interviews with transportation leaders have indicated that any intelligent and thoughtful investigation of the subject results in one unanimous verdict; namely, that the present calendar should be revised and The World Calendar adopted.

Other proposals for calendar reform have, of course, been made. Two hundred of them. But none of them show the concise and simple advantages of The World Calendar.

EASTER, EARLY AND LATE

By Charles C. Sutter

DISCUSSION of the wandering date of Easter and the inconveniences that result therefrom, is considerably clarified by an examination of the official Prayer Book of the Episcopal Church, which lists the dates of Easter during twelve complete cycles of the moon from 1786 to 2013. In this period there are 228 Easters. The earliest date is March 22, the latest April 25. Within these years Easter falls on April 16 eleven times and on March 31 eleven times: these two dates are the most frequent. The middle date is April 8. Easter comes before April 8, 106 times; after April 8, 112 times, and on April 8, 10 times. In other words, the average possible date is also the average actual date, which only shows as the Living Church Annual says, the universe is incurably rational. Easter falls once on the earliest possible date, in 1818, and twice on the latest possible date, in 1886 and 1943.

CHRONOLOGY OF CALENDARS

by CHARLES D. MORRIS

WHERE did calendars originate? Who was responsible for the changes they have undergone? How was our present system evolved? A search to answer these questions leads one back into the dawn of history and indeed into the ageless epochs when man was developing from savagery to the beginnings of a conscious civilization.

H. G. Wells, in his Outline of History, has called attention to the importance which the number twelve occupied in the early efforts of the human race at dividing the year. "Neolithic man was counting and falling under the spell of numbers," he writes. "In the lands of his origin, he was beginning to use tallies, and wondering at the triangularity of three and the squareness of four, and why some quantities like twelve were easily divided in all sorts of ways, and others like thirteen, impossible. Twelve became a noble, generous and familiar number to him, and thirteen rather an outcast and disreputable one."

The definite chronological record of the present calendar begins in Egypt more than 4000 years before the Christian era. It continues, by way of Babylonia, Palestine and Rome, down to the present time. The following tabulation suggests some important dates in calendar history:

7000 B.C.—Dawn of Egyptian civilization, with first traces of use of primitive calendar.

4700 to 4550 B.C.—Pyramids of Ghizeh used by Egyptian priest-astronomers for determining exact length of solar year.

4241 B.C.—The modern 12-month calendar, direct ancestor of our present system, is introduced in Egypt.

4004 B.C.—The date of Creation as assumed by the chronology of Bishop Usher of England.

3761 B.C.—Date of Creation as assumed by the Jewish calendar.

3102 B.C.—Beginning of time, according to Indian chronologist.

2397 B.C.—Beginning of time according to the Chinese.

2100 B.C.—Babylonian calendar became fixed; it was a lunar calendar of 12 months with one month repeated when necessary.

Circa 1800 B.C.—Seven-day week becomes a fixture in Asia Minor.

776 B.C.—Beginning of the era of the Olympiads.

753 B.C.—Roman era begins. This is the year "of the founding of the city," from which Roman chronology was reckoned.

600 B.C.—Greek scientists and philosophers devote their attention to calendrical science, but fail to establish any unified system among the Greek city-states. Most of them use a lunar 12-month calendar of 354 days.

509 B.C.—Rome shifts from a year of 10 months and 304 days to a

year of 12 months and 354 days (with a biennial intercalation of 21 days).

432 B.C.—Meton, Greek scientist, discovers that 19 solar years contain 235 lunations. The Metonic cycle enables a definite adjustment between solar and lunar years.

315 B.C.—Roman law calendar, previously a secret possession of the priesthood, is made public property by Cneius Flavius.

47 B.C.—Julius Caesar adopted revision of old Roman calendar.

46 B.C.—"Year of Confusion," a 445-day year marking the transition to the new Julian calendar.

45 B.C.—New calendar put into active use.

8 B.C.—Augustus Caesar muddles up the Julian calendar, revising the leap-year arrangement, and changing the length of the months in order to give 31 days to the new-named month of August.

312 A.D.—Constantine abolishes the Olympiads and establishes in their stead the Indictions, cycles of 15 years.

325—Council of Nicea is held at Nice to establish definite rules for observance of Easter and other church feasts. Use of the 7-day week becomes general throughout the Roman Empire, gradually supplanting the old division of the month into Ides, Nones and Kalends.

358—Rabbi Hillel II makes an adjustment of Jewish calendar.

532—Numbering of years as "from the birth of Christ" begins to replace other chronological systems. The inventor of the new system was a monk, Dionysius Exiguus.

816—Christian era introduced into England.

879—King Charles III of Germany is the first to add "in the year of our Lord" to the date of his reign.

1074—Omar Khayyam, poet and scientist, reforms Persian calendar.

1563—Council of Trent urges Pope to take up calendar reform.

1577—Pope Gregory XIII starts study of calendar reform proposals.

1582—Gregorian calendar adopted by Italy, Spain, Portugal, France.

1583—Gregorian calendar adopted by Switzerland and Holland.

1609—Gregorian calendar adopted by Protestant Germany.

1751—Gregorian calendar approved by the British Parliament.

1752—Gregorian calendar adopted by England and America. This included a change in the New Year's day from March 25 to January 1.

1793—French Revolutionary calendar introduced, with "decades" of 10 days each supplanting the 7-day weeks.

1804—French revolutionary calendar abandoned.

1834—Abbe Mastrofini suggests to Vatican a perpetual calendar using a "stabilizing" day.

1849—Auguste Comte proposes calendar of thirteen 28-day months.

1873—Japan adopts Gregorian calendar.

1887—Astronomical Society of France, after a 3-year study, recom-

mends perpetual calendar of 12-month equal-quarter type, rejecting as impractical all 13-month plans.

1900—Non-Roman churches, at Evangelical conference in Eisenach, take up proposals for calendar reform.

1908—Bill for reform introduced in Parliament.

1910—Congress of European Chambers of Commerce adopts resolution for calendar reform. Similar action was taken in 1912 and 1914.

1912—China adopts Gregorian calendar.

1913—International Association of Academies considers calendar reform.—Switzerland starts preparations for international convention.

1914—International Chamber of Commerce begins promotion of calendar reform, continued at meetings of 1921, 1923 and 1925.—Bill for calendar reform introduced in British Parliament.—Commercial organizations meeting in Liege and Paris urge revision.

1917—Organization of American business men formed to promote calendar reform.—Turkey adopts Gregorian calendar.

1918—Bolshevist Russia adopts Gregorian calendar.—Eastern Orthodox Church starts movement to discard Julian reckoning.—Bill for calendar reform introduced into U. S. Congress.

1919—International Astronomical Union studies calendar reform.

1920—Revised calendar urged by Lord Desborough in Parliament.

1921—British House of Lords considers proposals for a fixed Easter. —International conference on calendar is urged by International Chamber of Commerce.—Bill for calendar reform introduced in U. S. Congress.

1922—Hearing on calendar reform in House of Representatives.—Congress of International Astronomical Union recommends perpetual 12-month equal-quarter calendar.

1923—Greece and Greek Church adopt Gregorian calendar.—League of Nations takes up calendar revision and appoints committee of inquiry. —International Chamber of Commerce urges stabilization of Easter.

1924—Vatican officially states to League of Nations that there are no dogmatic objections to calendar reform or Easter stabilization.—Assembly of Geodesic and Geophysical Union at Madrid considers proposals for a new calendar.—Bill for calendar reform introduced in the U. S. Congress.

1925—International Chamber of Commerce approves League of Nations activity for calender reform.

1926—Assembly of League of Nations formally accepts report of its committee of inquiry into calendar reform.—International Commission of Marine Meteorology favors perpetual calendar of equal-quarter type.

1927—League of Nations invites all governments to study the subject of calendar revision and to appoint national committees.

1928—Pan American Conference at Havana urges Latin-American states to participate in League of Nations' studies.—England legislates for

a fixed Easter.—National Academy of Sciences in Washington favors calendar revision.—George Eastman of Rochester, founds an American committee for the promotion of the 13-month calendar.—Bills and resolutions in U. S. Senate and House, and formal hearings are held.

1929—Universal Christian Council (non-Roman churches), at Eisenach, adopts resolution urging churches to participate in movement for calendar reform.—Resolutions introduced in U. S. Congress requesting President to call international convention for consideration of calendar.

1930—The World Calendar Association organized in New York.

1931—International Conference on calendar reform at League of Nations, with 44 nations represented, adopts an act for the stabilization of Easter and recommends continued study of plans for general revision of the calendar.—Eastern Orthodox Church approves general revision of the calendar on 12-month equal-quarter basis.—Governments of Greece and Switzerland officially approve calendar reform on 12-month basis.

1932—Rational Calendar Association of England organized to promote equal-quarter calendar.—Twenty-six nations formally approve the Easter Act adopted by the League of Nations.—Universal Christian Council starts a formal study of calendar reform.—National Electric Light Association of New York completes an industrial study of calendar reform.

1933—International Chamber of Commerce votes for a study of trade problems in connection with calendar reform.—Universal Christian Council approves League proposals for Easter stabilization.—Bureau d'Etudes organized in Paris to study calendar revision.—President Hoover's Committee on Social Trends urges importance of calendar simplification.

1934—Latin-America organizes committees in six countries, and Chilean government officially endorses World Calendar.—International Parliamentary Union considers subject at Istanbul congress.—Rational Calendar Association of Canada organized.—Venezuela endorses World Calendar.—Turkey becomes first non-Christian country to take up calendar simplification.—President De Valera of Irish Free State opposes any revision based on 13 months.—Japan states willingness to consider 12-month revision.—Universal Christian Council at Fano approves calendar reform, urging member churches to interest their governments.—Protestant Episcopal Church approves World Calendar; Federal Council of Churches considers subject favorably at annual convention; governing bodies of American Lutherans, Presbyterians and Southern Methodists adopt resolutions.—American Statistical Association appoints committee of study.—Congress of Fraternal Insurance Societies, 9,000,000 members, endorses World Calendar.—Questionnaire of American clergy shows 12-month plan favored by 7 to 1 over 13-month plan.—United Press, in survey of American business opinion, finds calendar reform favored 8 to 1.

EXCERPTS AND REVIEWS

Meeting Business Needs

By J. B. Perry Robinson

(In *Home and Empire,* London)

THE TASK of the calendar reformer has never been an easy one. Even Julius Cæsar's calendar did not please his successor, Augustus, who, when he gave his name to August, found that his month had one day less than Cæsar's July, and so took a day from February and added it to August. This produced one of the worries of modern statisticians, who have to deal with a year of four unequal quarters of 90, 91, 92, and 92 days.

Indeed, apart from the inconveniences which affect all of us, it is the statisticians who suffer most immediately from the defects of the calendar, and, through them, all industry—since modern industry is so highly organized that exact statistical information is of the first importance. Time after time, for instance, the British Board of Trade monthly returns for imports and exports are vitiated by the fact that the month under review has a different number of working days not only from the previous month, but also from the same month in the previous year.

It is because such discrepancies as these render it almost impossible to make accurate comparisons that business men are recognizing the need for calendar reform, and the movement initiated by the London Chamber of Commerce some years ago is more and more gathering force.

The movement has been hampered by the fact that one scheme which has attracted a certain amount of attention provides for the division of the year into thirteen equal months of twenty-eight days each. So drastic — and unnecessary — a change would obviously be unacceptable to this country, and the 12-month equal-quarter scheme which has the support of Lord Desborough and many of the leading Chambers of Commerce and other public bodies is much more moderate and attractive.

Four years from now January 1st, 1939, will fall on a Sunday, and it is the hope of those who advocate reform that from that time onward the Gregorian Calendar will have been replaced by a modified form of it in which every year will begin on a Sunday and the same date will always fall on the same day.

From International Rotary

By Rufus F. Chapin

Treasurer of Rotary International

(In the *Rotarian,* Chicago, January, 1935)

ROTARIANS in Mexico City for the convention next June should without fail see the great Aztec Calendar Stone in the National Museum, where it holds an honored place. It is the most valuable object that has come down intact from that ancient Mexican civilization. This single piece of porphyry, weighing twenty tons, was transported over miles of marshy lake bottom before it could be placed in position in front of the barbaric Temple of the Sun. Yet the chief use of that stone, archaeologists presume, was not time-keeping, but religious observance.

Business men are still stubbing their toes on a rock put in their path by Emperor Augustus Cæsar nineteen centuries ago. Under the imperial purple, Augustus was both vain and jealous.

His predecessor, Julius Cæsar, introduced a new calendar in which the seventh month was named July in his own honor. Augustus could not sit still until he had a month, August, named after him also. Furthermore, since July had thirty-one days, August too must have thirty-one, although it was supposed to have only thirty. The Julian Calendar was thus thrown out of line to satisfy his vanity—and statisticians trying to compare one business year with another are still sweating blood over the irregularity.

Most of us think of the calendar as something unalterably fixed by the sun and moon, and past changing. In fact, however, it is a human device, an invention, in the same sense as electric lights, and has often been made and re-made.

On February 22 more than a hundred million Americans celebrate the birthday of George Washington. But even more than a hundred million Americans can be

wrong. Washington was not born on February 22d at all, but on February 11th, and probably all his life celebrated on the 11th. The reason for this anomaly, of course, is that the last great change in the calendar occurred during Washington's lifetime, an eleven-day correction in dates being made.

Today, calendar reform is once more becoming urgent. Irregularities in our calendar make accurate business statistics and exact comparisons impossible.

World Progress

By Robert Hunt Lyman

(In *The World Almanac*, New York)

REFORM of the calendar that it may be balanced in structure and perpetual in form has been long under discussion and is now under consideration by a committee of the League of Nations, which may, in 1936, set in motion the machinery for international legislation on it.

Strong advocates urge a rearrangement of the twelve months so that the new revised calendar would have a year with equal quarters in which the first month of each will have 31 days and the other two 30 days each.

The advantages to the government officials, scientists, business men and statisticians of comparable quarters, months, weeks and working days are obvious and would be most welcome.

Moreover, the transition from the old order to the new would be so easy and simple that it would not make a ripple in the daily life of the people. The transition in the English-speaking countries in 1752 from Old Style to New Style when 11 days were dropped out of September (from the 3d to the 13th) to restore the Gregorian Calendar into harmony with the solar year was without disturbance.

Studies on an intensive scale have been undertaken by governmental departments. It is noteworthy that Capt. J. F. Hellweg, Superintendent of the United States Naval Observatory, to whom the United States Navy Department formally referred the subject for a study, flatly opposes the 13-month calendar suggested in some quarters as difficult to use and sure to cause endless confusion. A similar attitude was taken by the U. S. Bureau of Standards, and the Brookings Institute.

Many church organizations are lined up among those heartily in favor of the 12-month equal-quarter reform and also the stabilization of Easter. Notably among them are the Federal Council of Churches in the United States and the Universal Christian Council at its meeting in Fano, Denmark. The General Convention of the Protestant Episcopal Church at Atlantic City, Oct. 19, 1934, adopted a resolution.

It is obvious that international action is necessary to the successful completion of calendar reform and twenty national committees are working for it; four governments have taken action and the Eastern Orthodox Church has declared for it.

Record of the Campaign

By Arthur R. Tucker

(In *The Controller*, New York City)

AN interesting record of the campaign that is being waged for revision of the calendar is contained in the Journal of Calendar Reform. The current issue presents a series of articles descriptive of progress made by various organizations throughout the world. The Journal favors adoption of The World Calendar.

Advantages of this calendar are: the revised 12-month year in its even quarters conforms to the seasons, recognizing natural laws; comparisons are easily obtained, changes involved require a minimum of adjustment; religious and secular holidays are stabilized, and the transition from the old to the new order is made easy.

A page of editorial paragraphs taken from newspapers is included in this issue. One paragraph calls attention to the 36 different proposals for a new calendar brought to the attention of German committees, but just one is being given any important support, namely The World Calendar. The New York *Herald Tribune* says: "For 2000 years the world has suffered in its calendar from one Roman Caesar's ignorance and another's reckless vanity. The Julian year is full of lopsided months which support the calendar-printing industry and make hash out of bookkeeping."

CURRENT PRESS COMMENT

Reform is Progressing

Boston Transcript

In the midst of myriad efforts for reform in the ways in which the American people conduct their business and political affairs, let it not be forgotten that the effort to reform the calendar goes on. If it does not now attract the attention which is bestowed upon some of the other reforms attempted or merely talked about, it may become one of the burning questions of the hour, and the Literary Digest may conduct a straw vote to determine whether the country prefers a year with 12 months or 13 months of a brand new order.

A pamphlet by Elisabeth Achelis, president of The World Calendar Association, entitled "Progress of Calendar Reform in America," gives evidence that the reform is progressing. Even more convincing evidence is found in reference to government studies and in the attitude of the churches and civic bodies. There would seem to be growing recognition of the wisdom of reforming the calendar.

Sure to Come

San Francisco Chronicle

Reform of the calendar, when it does come, as it is sure to eventually, should not be decided on except on a basis of the most thorough knowledge of the subject. Whatever plan is adopted should be good enough to last.

Our government is continuously active in studies of the questions involved and of the possible effects of revision. The Department of Commerce, the Bureau of Standards, the United States Naval Observatory and various other bureaus are at work running down the facts.

The points to be sought are clearly enough shown from the faults of our present system. Reform should give us a permanent calendar, avoiding the changing arrangement of waste and the unequal number of weekdays in the same month in successive years, the constant shifting of holidays, the fact that the year and the months do not begin on the same day of the week in successive years. All these are awkward and confusing. We have patience with these manifest defects only because we are used to them, never having known anything better.

For a Streamlined Year

Lancaster (Pa.) News

Proposals for a "streamlined" year await the League of Nations' next move. Friends of calendar reform had been hopeful that their cause would reach the stage of international legislation this year. They are now predicting a convention of world authorities to do the job. Dr. Robert J. Pilgram of Franklin and Marshall College, one of the strongest advocates of reform, thinks the League will not take responsibility for a definite decision.

"I don't think the League feels itself strong enough to make such a sweeping change," he says. "While it is strongly in favor of revision, it is still not assured of its position throughout the world. For it to order a calendar change and have its decree ignored by even one nation would be most embarrassing. What the League will do, however, is to recommend an authorized convention of nations, such as was called by the United States fifty years ago to establish International Time."

Whether the change can be completed in 1939 is too far away for accurate predicting, Dr. Pilgram says, but he confidently anticipates such action.

Urged by Scientists

Indianapolis Times

What scientists would like to see would be a system which would standardize the calendar so that the calendar of any year would be exactly like the calendar of any other year. The most workable plan so far evolved is that of the World Calendar Association.

The World Calendar, Dr. Leonard says, "is a perpetual, symmetrical 12-month calendar." It consists of four identical quarters per year.

JOURNAL OF CALENDAR REFORM

EDITORS

CHARLES D. MORRIS CHARLES C. SUTTER

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ELISABETH ACHELIS, *President*

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ACTIVITIES in Latin America on behalf of calendar reform continue to be among the most significant happenings of the current year, particularly for those who confidently hope for definite international action toward the legislation of a new calendar beginning with the year 1939.

As this issue goes to press, announcement comes of the organization of a new calendar reform committee in Colombia, and of preliminary steps for the establishment of a similar committee in Argentina. These two committees will supplement and strengthen the Latin-American group which already includes Chile, Brazil, Costa Rica, Uruguay, Bolivia and Panama.

The Colombian Committee is under the chairmanship of Dr. Eduardo Posada, greatest living historian in South America and author of many important historical and biographical works. "I have always been interested in Calendar Reform," he says, "and I find this new project very proper and wise. It is the one which will at last solve this complicated problem. The 13-month plan had its advantages, but the inconvenience of 13, which is not divisible into halves and quarters, made it impracticable. The Calendar which we are favoring fortunately continues the useful division of the year into 12 months. With pleasure I accept the chairmanship of the Committee."

The Argentine organization is under the chairmanship of the Rev. Father Jose Ubach, astronomer of the Jesuit Observatory in Buenos Aires.

That the eight Latin-American committees, cooperating through the central committee under Dr. I. Gajardo Reyes of Chile, will exercise a strong international influence for the adoption of the 12-month equal-quarter calendar, cannot be doubted. All the committees have powerful official connections with the Chancelleries of their governments, and Dr. Gajardo Reyes will represent Chile at the next League of Nations meeting on the subject.

Two interesting booklets, in Spanish, have just been published by Dr. Reyes, who will present them for consideration at the forthcoming meeting of the Pan-American Commercial Congress in Buenos Aires. In the course of a visit to the east coast of South America, Dr. Reyes will deliver lectures on calendar reform at the University of Montevideo and other institutions, and will attend meetings of committees in Uruguay, Argentina and Brazil.

FROM THE MAILBAG

Calendar improvement is of special interest to me as a mathematician and I think it highly desirable. I am pleased to see the wide influence your movement is exerting.—Prof. Charles Jordan, Univ. of Budapest.

I believe that your entire reformed calendar would be a good thing.—Bishop E. G. Richardson (Methodist Episcopal), Philadelphia.

Am exceedingly interested in the revised 12-month calendar and shall make some talks in favor of it.—A. Williams, Export Manager, Woodstock Typewriter Co., Chicago, Ill.

The World Calendar seems as perfect an arrangement as possible for the division of time. Why delay its acceptance?—A. M. Archambault, Artist, Philadelphia.

No institution, not even the churches, experiences more disruption from the present form of the calendar than the universities. The administrative organs of the universities, on which the effects fall, are well organized nationally in this country and should be enlisted.—Prof. F. L. Nussbaum, Laramie, Wyo.

This is the psychological time to urge upon the people the advantages of The World Calendar over the antiquated system now in use.—Archibald Campbell, General, U. S. A., New York.

Such study as I have been able to give the different plans for calendar reform makes The World Calendar proposal seem by far the most practical.—Edward M. Cross, Bishop of Spokane, Wash.

The movement for calendar reform gains more and more here; the progress is constant although a little slow because the idea is new.—Prof. Ihsan Ali, Univ. of Istanbul, Turkey.

May I take this occasion to commend you for the good work you and your organization are doing?—Rev. Harold Purcell, Editor The Sign, National Catholic Magazine, Union City, N. J.

As New England Director for the League of Nations Association, I am much interested.—I. Armstrong, Boston.

Have seen several issues of your Journal. Much impressed with your purpose.—Dr. J. P. Garen, Health Commissioner, Olean, N. Y.

Shall be glad to cooperate fully in this much needed reform.—I. O. Bragg, Supt. Schools, Eastport, Maine.

The most important fault of our present calendar is the lack of comparability of corresponding weeks or months in different years because of differences in the number of Sundays, number of working days, day of week on which holidays fall, and day of week on which the first (or last) of the month falls. The 12-month equal-quarter plan completely removes this lack of comparability without introducing a lot of other changes which would interfere with the analysis of past records and needlessly upset established channels of thought and business conduct.—R. W. Burgess, Chief Statistician, Western Electric Co., New York.

You may be interested to know that I had two graduate students present papers on this subject before our seminar group. —Prof. H. N. Turner, Yale Univ., New Haven.

Five years of study have failed to reveal any Scriptural objections. The welfare of the world awaits one grand instance of cooperation: let it be a common calendar.—C. E. Hermsted, Clergyman, Bethlehem, Pa.

The 12-month equal-quarter plan stands best chance of adoption and would cause less disruption in transferring from present calendar.—H. V. Morris Statistician, Weyerhaeuser Sales Co., St. Paul, Minn.

I have made an extensive study of calendars in general, and am convinced that yours is best of proposed reforms.—H. S. Rooks, Lawyer, St. Louis.

This appears to me to be a most desirable reform.—F. V. Bistrup, Secy. Associated Industries, Boston.

Adoption of a 12-month revised calendar should be a significant step in the direction of international cooperation.—H. C. M. Wendel, Prof. of History, Long Island Univ., Brooklyn, N. Y.

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Membership is based on an active interest in the study of an adequate and effective improvement of the calendar. Owing to lack of space, a large number of names have been omitted. They will be printed in future issues.

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GREECE: Greek National Committee on Calendar Reform, Prof. S. Plakidis, Secy., Observatory of Athens, Athens.

HUNGARY: Hungarian Committee for Study of Calendar Reform, Dr. Paul Vajda, Secy., 9 Eotos Utca, Budapest.

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SOUTH AMERICA: Comite Latino-Americano del Calendario Mundial, Dr. I. Gajardo Reyes, President, Santiago, Chile. This committee directs the activities of national organizations in Brazil, Costa Rica, Uruguay, Chile, Bolivia, Colombia and Panama.

SPAIN: Spanish Calendar Reform Committee, Dr. Mariano Doporto, Secy., San Sebastian.

SWITZERLAND: Swiss National Committee on Calendar Reform, Prof. Emile Marchand, Secy., 4 Jenatschstrasse, Zurich.

TURKEY: Committee on Calendar Reform, Prof. Ihsan Ali, Secy., Ayas Pasa Nimet Apt. 3, Istanbul.

EDITORIAL PARAGRAPHS

Big business more and more is moving in with the calendar reformers.—Detroit *Times.*

The world today is engaged, through its political, scientific and ecclesiastical representatives, in devising a calendar system as simple for our times and needs as was the calendar adopted by Julius Cæsar for his generation. His calendar was a fixed one, the same for every year.—Wooster (O.) *Record.*

Proposals for an agreement between the three great branches of the Christian church concerning calendar reform have been made public by the Federal Council of Churches.—Hoboken (N. J.) *Observer.*

Germany is now taking calendar reform very seriously.—Omaha *Bee News.*

Into the scrap heap should go the proposed 13-month year, on the ground that it is preposterous. The new calendar must retain the 12-month year.—Atlantic (Ia.) *News Telegraph.*

Any calendar change, if confusion is to be avoided, should be effected by international agreement.—Dallas (Tex.) *Journal.*

Calendar reformers record marked gains in their efforts to ditch the old diurnal score-card left by Julius Cæsar and Pope Gregory.—Pittsburgh *Sun-Telegraph.*

What was good enough for our grandfathers in the arrangement of the year is no longer good enough.—Stamford (Conn.) *Advocate.*

There is reason to believe that the cause of calendar reform is moving on faster than may have been supposed, even if it is overshadowed by other reform movements, some of them with much less chance of success.—Boston *Transcript.*

American interest in calendar reform has been increasing steadily since the subject first came to public attention.—Harrisburg (Pa.) *Telegraph.*

Sponsors of the new calendar are gaining more attention. Of course the world has worried along with the present calendar for several centuries, but this is not a valid reason for refusal to adopt a better one.—Kenosha (Wis.) *News.*

Calendar reform may become one of the burning questions of the hour.—Brooklyn *Eagle.*

We're all for calendar reform. There's no earthly reason why one month should have 28 days, others 30 days, and the rest 31 days.—Parsons (Kan.) *Sun.*

Hitler strongly favors the 12-month, as against the 13-month plan.—Chicago *American.*

A new calendar has a peculiar message for the world today. It is an admonition, a reminder and a source of hope.—Sedalia (Mo.) *Democrat.*

The so-called World Calendar seems to be meeting with much favor. There are many benefits which could be derived from its adoption. It is far from a passing fancy or a fad. The reform is one to be desired in the interests of simplicity and uniformity.—Woonsocket (R. I.) *Call.*

Revision of the calendar may be expected in the not-distant future. Steps already taken to encourage concerted action will, it is hoped, bear fruit.—Nyack (N. Y.) *Journal News.*

The Episcopal convention adopted resolutions favoring a general calendar shake-up, and particularly the stabilization of Easter, which religious organizations have been trying to get back on the temporal gold standard for a long time.—Miami (Fla.) *Herald.*

The new calendar, when it comes, must retain the 12-month year.—Providence *Journal.*

The subject of calendar reform, though it does not lend itself to sensational treatment, is rapidly gaining increased attention among thinking people.—Quebec *Diocesan Gazette.*

While the path to the ultimate reform desired may still be a long one, distinct progress is noted in the creation of public interest and the development of a better public understanding of the reformers' aims.—Wilmington (Calif.) *Press.*



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CONTENTS

Humanity Marches with Time, by Charles Francis Potter . . 49
Obituary Notes 54
Latin-American Action, by Charles C. Sutter 55
International Date-Line, by James L. C. Ford 61
Lessons from Playing Cards, by Samuel Zovello 68
Progress in Central Europe, by Charles Michael Meister . . 73
Merchandising Problems, by Jerome S. Schwartz 76
Stellar Yardsticks, by Amy Morris Lillie 80
(Introduction by Professor John Dewey)
Vignettes of History, by Margaret Becker Kulp 88
Chamber of Commerce Acts, by Howard C. Smith 92
Opinion of Actuaries, by T. W. Gerber 95
Romance of the Calendar, I, by P. W. Wilson 100
Excerpts and Reviews 106
Editorial Paragraphs 108
Editorial: New Calendar Urged by Business 109
From the Mailbag 110
List of New Members 111

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THE WORLD CALENDAR

Every Year the Same

JANUARY

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YEAR-END DAY, December Y, follows December 30th every year
LEAP-YEAR DAY, June L, follows June 30th in leap years

The World Calendar regulates the twelve-month year. It is balanced in structure, perpetual in form.

Its twelve months are multiples of halves and quarters. The equal quarters consist of 3 months; the first month has 31 days; the remaining two have 30 days. These quarters also comprise 13 weeks or 91 days, of which 13 days are Sundays and 78 are weekdays. Each month has 26 weekdays.

In the perpetual calendar, Year-End Day, the odd 365th and last day of the year, is considered as an extra Saturday between December 30th and January 1st. The additional 366th day in leap year is considered as another extra Saturday between June 30th and July 1st and is called Leap-Year Day. These days are tabulated as December Y and June L respectively, by which method the 31-day months begin the quarters. It is recommended that these two stabilizing days be considered by the United States as holidays. January 1st, New Year's Day, falls on Sunday, and the working week begins the following day.

The revised twelve-month year in its even quarters conforms to the seasons, recognizing natural laws. Comparisons are easily obtained; changes involved require a minimum of adjustment; expenses are not increased for business and the consumer; religious and secular holidays are stabilized, and the transition from the old to the new order is made easy by the retention of the twelve-month year.

"Our stability is but balance."—Robert Bridges.

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EDITORS
CHARLES D. MORRIS CHARLES C. SUTTER

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HUMANITY MARCHES WITH TIME

By CHARLES FRANCIS POTTER

As founder of the Humanist Societies which are becoming an important factor in religious life throughout America, and author of the popular text book on "The Story of Religion," Dr. Potter speaks with a definite authority on the part played by the calendar in the development of civilization. He is a graduate of Bucknell University, and for many years occupied a professorial chair at the famous Antioch College. His Sunday lectures on Humanism, delivered in Steinway Hall, New York, are a feature of present-day culture in the metropolis.

A PERSON who had studied the history of the gradual development of the calendar might be inclined to infer that the calendar is a product of civilization, but a more penetrating observer would reply that the opposite is also true—civilization is a product of the calendar. Of course, many other factors have entered into the making of civilization, but man's progress has depended greatly upon the evolution of his time-consciousness. As man has perfected his calendar, so has he made possible the building-up of his world. And when he decides to replace his present inadequate calendar with a better one, he may expect a corresponding improvement of his civilization.

There are certain obvious immediate benefits to be derived from the adoption of The World Calendar which almost anyone of intelligence will grant—the equal quarter-years, the balanced structure, the perpetual form, the stabilization of holidays, the reduction of uncertainty to a minimum,

and the simple method of intercalation by one yearly and one quadrennial holiday. But there are other benefits, subtle, imponderable, and psychological, which should not be overlooked, for in the long run they are even more important and valuable.

Men everywhere will congratulate themselves when The World Calendar becomes an actual accepted reality instead of the hope and aspiration of a few forward-looking reformers. Always an intelligent minority anticipates and agitates until the sheer weight of logic compels the rest to accept the overdue and much-needed reform. Then when the new order is established and generally accepted, the *hoi polloi* say to themselves, "Weren't we wise to do this thing?"

It has long been evident that our present calendar has become inadequate and outgrown. It does not fit our modern living. This is the age of electricity, but our calendar is a relic of the days of tallow-candles, ox-carts, and stage-coaches. Modern business and commerce find this ancient system of measuring time cumbersome, irritating, and frequently handicapping because of the delays it causes.

It would take a large group of expert calculators years to estimate the waste of time, energy, and nervous force caused in the last hundred years by the irregularities of our present months, which vary in length from 28 to 31 days, our uneven quarter-years, and our peripatetic Easters, which may come almost any time within 35 days.

When we are released from the irritations, conscious and unconscious, provoked by the vagaries of our inherited calendar, we will all feel a sense of relief and will tackle with more hope the multiple problems yet to be solved. There is a sense of psychological and spiritual triumph which pervades all mankind when the combined intellect and good sense of human beings has been exercised to take a step forward in civilization by removing a common handicap. That feeling of victory encourages us to proceed with other needed reforms.

Moreover, the world-wide adoption of The World Calendar will extend and deepen the sense of unity and interdependence among all men, and will tend to remove the frictions and differences which divide us.

The old story of the Tower of Babel and the confusion of tongues is commonly recognized these days as an allegory, but it did put in dramatic story form the great truth that when men cannot understand each other, chaos results in human relations. We have, therefore, a sacred duty as human fellow-inhabitants of this planet to do all we may to remove from our communications those customs and institutions which unnecessarily divide us from each other. Surely, at this stage of the world's progress, we have arrived at the period when we can agree upon such a common matter as the measurement of time. The time-experience is, of all human experiences, the one which is universal, and is felt and recognized by all.

We can achieve solidarity in the counting of our days and years, since every inhabitant of the planet must necessarily accept them as of the same length, determined by the very revolutions of the planet itself. If we feel that we must retain certain prejudices of race, color, nationality, politics, and religion, we can, at least, agree upon the matter of the calendar, which can be accurately determined by the science of astronomy.

And it well may be that when we come to agree upon this one thing, a world calendar, we will discover that some of the other things which have hitherto so lamentably divided us can also be reconciled upon a common basis and in the light of the new planetary consciousness born of a system of time-measurement agreed upon by all nations.

It is well known to experienced arbitrators that when warring groups or hostile individuals can be brought to agree in even a small particular of the matter under dispute, it is frequently possible to proceed therefrom to the settlement of the entire difficulty. With that fact in mind, some of us who are hoping and working for world peace look upon the adoption of a world calendar as the initial step toward the long-dreamed-of brotherhood of man. It is well within the realm of possibility that future historians will look back upon January 1, 1939, the proposed date for the establishment of The World Calendar, as the golden day marking the beginning of a new era of world consciousness.

Exactly one hundred years ago William Miller was prophesying that the end of the world and the second coming of Jesus Christ would come in the year 1843. That prophecy was based on a misunderstanding of the meaning of certain Biblical passages, and its failure of fulfillment brought disappointment and chagrin to many ignorant and deluded folk.

Today many of us are hoping that January 1, 1939, will mark the beginning of a new world of human cooperation. We do not expect the advent of this new era to be marked by signs and wonders in the heavens and we are not depending upon celestial visitors to inaugurate the new dispensation. We believe rather that the common sense of mankind can be depended upon to recognize the obvious benefits to be derived from an improved and systematized world calendar, which will be the first step toward international cooperation in other matters of mutual interest.

Then let those who abhor the fratricide of war, those who deplore racial animosities, those who fear the destruction of our civilization through the present rivalries and hostile attitudes of nations, those who seek the unifying of religions, hoping "that they all may be one"—let all these blessed dreamers and idealists cooperate and concentrate upon the tangible, definite, concrete, and practical first step toward all these unifications. and work for the speedy adoption of The World Calendar.

Calendar reform is a sign and an expression of man's evolution. When primitive men first became dimly aware of the succession of day and night

and learned to expect the coming of the warming sun after the cold darkness, they were laying the foundation of a consciousness of duration and order. The continuity of existence was forcing itself upon their attention. The dawning recognition of order was strengthened when they learned the succession of the seasons. The ripened fruits of autumn, the return of the sun and the lengthening days at the winter solstice, the up-springing vegetation of springtime, and the heat and attendant efflorescence of nature at mid-summer—these seasonal joys doubtless inspired the feasts and celebrations which soon took on religious connotations and gave rise to the first calendar of the seasons, which much later became the "church year."

By that time early men had begun to recognize the alternate waxing and waning of the moon. Studying the lunar phenomena led them to observe the motions of the stars. Sun, moon, and stars were three visible means of reckoning the passage of time, and the various attempts to reconcile the different time periods derived from these three sources have occupied the calendar makers from that time to this. Only in our own day has a solution of these difficulties become possible in The World Calendar.

Civilization is making us time-conscious, and our evolving time-consciousness is enabling us to develop our civilization. The ever-improving calendar is man's own home-made tool for carving out his own thought- and culture-world. The present calendar is too blunt and dull and inaccurate for modern use. Calendar reform will sharpen and "true" it for better work and finer tasks.

Man's task of making himself at home in the world in which he finds himself is one to challenge all his powers, and man owes it to himself to make use of the best tools available, and also continually to improve those tools. The main problems of what is called civilization are problems of shaping environment to meet growing needs of man's evolving spirit.

To put it in another way, the chief mission of man, if he would make his world serve his needs and furnish him comfort and support, is to reduce chaos to order. William James once said that to an infant the world is a big, blooming, buzzing confusion. As the child grows and learns, the confusion lessens as he begins to perceive the underlying order, and as he himself reduces the confusion about him and in him to the order which is the unity of his own emerging personality.

It was so with primitive man. The story of the evolution of human civilization is the record of order emerging from chaos. It is literally true that to our earliest human ancestors the earth was without form and void, and darkness lay on the face of the deep. The first light in that darkness, the first order in that chaos, penetrated and illuminated the childlike mind of proto-man when he perceived that a period of light followed by a period of darkness made one round, or day, and the next light and darkness made a second day. In other words, the basis and groundwork for the calendar

was being laid: man was becoming time-conscious. As he became aware of the great principle of duration, continuity of events, or time, then, in that instant, chaos began to recede and order began to emerge. Civilization had commenced.

But how long and exasperatingly slow has been the process since that day! Every tribe of men has had its own method of reckoning time, and has been jealous and zealous to defend that particular method. Eclipses which interrupted with unexpected variations the orderly procession of alternate light and darkness gave rise to fears that the very end of the world had come. So closely has man connected the calendar with the stability of existence itself that he has bitterly resented every attempt to improve the calendar and has considered any change to be a fundamental and extremely dangerous heresy.

This intimate connection between the time-consciousness and the sense of security is one of the most deeply imbedded feelings of racial man. Indeed, it probably roots back in the long ages before man was man. Who shall say that the animals are not aware of the alternation of heat and cold in the seasons, or that the fishes are not conscious of the rhythm of the tides? Buried deep in every cell of our bodies is an inherited response-pattern reacting to the light and dark of day and night, and to the heat and cold of summer and winter. Inherited instinct and acquired habit combine to make us time-conscious before we are conscious of anything else. The weather is the natural conversation-topic.

The real psychological reason why men have fought calendar changes is because they have thought that those who were trying to improve the calendar were trying to alter time itself! Of course, the reformers of our calendars have simply been trying to make our inherited methods of time measurement correspond more nearly to true time. But so fixed are the diurnal, lunar, seasonal, solar, and sidereal rhythms in our racial consciousness, and particularly in our racial subconsciousness, that the mere mention of a proposed change in the length of a month, for instance, produces an immediate, hostile, unthinking reaction, as truly instinctive as the bristling of a dog's neck hair or the ruffling of a rooster's hackle when security seems threatened.

But roosters and dogs soon learn to welcome as a friend the person whom they first resented as a suspicious stranger. Patient education will gradually convert opponents of calendar revision. Great progress in that direction has already been made.

Success will come to the advocates of The World Calendar when due recognition is taken of the fact that the very thing which leads some persons to oppose calendar revision should lead them to welcome it. The desire for security is ineradicable. It is also praiseworthy, for on it depends the very existence of the human race. We defend our safety with

a natural intensity so strong as to amount to fanaticism. Tampering with time-reckoning seems like disturbing the equilibrium of the very earth on which we live. No wonder we resent anything which seems like rocking the boat. But let the revisionists point out the fact that there is a leak in the boat, a leak which they propose to mend, and the obstructionists will change from enemies of calendar reform to allies.

If we are sailing our boat by a chart so complicated and complex that we lose valuable time in mathematical calculations, and if, moreover, every passenger on the boat has to have an individual chart in his cabin which he has frequently to consult before he knows what day it is, it certainly stands to reason that we all should welcome those who offer us a chart, adequate, accurate, and so simple a child can memorize it with his ABC's.

Here, at last, is security for our time-consciousness—a year-clock for all the inhabitants of the world—a unifying instead of a divisive influence. It is a logical outgrowth and perfection of the common calendar of Christendom, and its adoption will enable civilization to take a long step forward.

OBITUARY NOTES

CONGRESSMAN ANTHONY J. GRIFFIN, one of the foremost advocates of calendar reform in the House of Representatives, died on January 13 at his home in New York City. In November of last year he wrote, regarding calendar reform: "I am very glad indeed to get the resolution adopted by the General Convention of the Protestant Episcopal Church. I have long been an advocate of the 12-month plan of calendar reform and shall do all I can to promote its adoption."

JUDGE ANDREW ALEXANDER BRUCE, president of the American Institute of Criminal Law and vice-president of the National Committee on Uniform State Laws, died in Chicago on December 6. He had been a member of The World Calendar Association since 1931 and was an enthusiastic advocate of the 12-month revision.

AXEL GERFALK, secretary of the Danish Commission on Calendar Reform, died of heart disease at his home in Copenhagen on March 25. He had a long and distinguished career as a journalist, and was president of the American Club of Denmark. He was a lecturer at London University in 1917-18 and chief of the press department of the Danish government in 1919.

REAR ADMIRAL ARTHUR L. WILLARD of the U. S. Navy died in Washington on April 7. He had been a member of The World Calendar Association since the early part of 1932. He held the cross of the French Legion of Honor and many other foreign decorations.

CHARLES A. BOSTON, former president of the American Bar Association, died at his home in New York City on March 8. He brought the subject of calendar reform before the Bar Association in 1931, instituting a three-year study of the subject, and was himself an influential advocate of The World Calendar plan.

JANE ADDAMS, world-famous social worker and a long-time advocate of calendar reform, died on May 21 in Chicago. As the founder of Hull House she set a model for all modern social service methods. Shortly before her death she wrote to The World Calendar Association: "I shall be happy to do whatever is possible to aid in your undertaking."

LATIN-AMERICAN ACTION

By CHARLES C. SUTTER

Director of The World Calendar Association

THROUGH the well-organized channels of Roman Catholic opinion in Latin America, a definite program aiming at a larger participation by that church in the movement for calendar reform has been launched during the past few months. The effect of the program was evidenced in March, when Dr. Ismael Gajardo Reyes, chairman of the Latin-American committee for calendar reform, made a tour of most of the fourteen countries represented on his committee, acting as the authorized representative of the Chilean government.

"My tour was undertaken for two main purposes," Dr. Reyes stated. "First, to learn the official opinion of the leading South American governments; second, to ascertain more definitely the opinion of the Roman Catholic Church.

"On the latter point, I was able to reach certain clear conclusions. One of these was that the Roman Catholic clergy in South America is not only informed and interested—but distinctly favorable to the adoption of a new calendar. All the priests with whom I discussed the matter, in various parts of South America, were in favor of reforming the calendar on the basis of the plan proposed by The World Calendar Association.

"A similar result came from my visits to the great Catholic universities. There can be no doubt that the attitude of the Church is every day more favorable to this plan. Church leaders point out that, purely from a liturgical standpoint, it will facilitate the practice of all religious services.

"As to the hierarchy, the governors of the Church, I can also speak with assurance. Most of our Latin-American committees on calendar reform, in the principal countries, include on their active membership prominent representatives of the Church.

"For instance, the Chilean committee is under the distinguished chairmanship of the eminent Salesian priest, the Reverend Father Valentin Panzarasa, who has discussed the subject of calendar reform with the Apostolic Nuncio in Santiago, Monsignor Ettore Felice. From the Nuncio comes the information that His Holiness, Pope Pius XI, finds the plan of The World Calendar very practical and convenient, and sees no dogmatic objection to it, or to the fixation of Easter on April 8."

Added strength is given to this statement, if any is needed, by the recent utterances of members of the hierarchy in various Latin-American countries. From the Mexican Apostolic Delegate and Primate of the Church in Mexico, the Most Reverend Leopoldo Ruiz y Florez, Archbishop

of Morelia, comes this definite statement: "I think the reform of the calendar advisable and the best plan that of The World Calendar. Time will come when this idea will win."

One of the leading members of the Church in Venezuela, the Right Reverend Sisto Sosa, Bishop of Cumana, says: "The reform of the calendar seems to me of immense value, especially with reference to the liturgy. In the near future the bishops of Venezuela will hold an Episcopal conference and impressions will be exchanged on this very important matter. On my part, the project has all my sympathy, and if the other Venezuelan bishops are of the same opinion it will give me the greatest pleasure to bring the matter to the attention of the Holy Father."

From the Right Reverend Severiano Sainz, Bishop of Matanzas, Cuba, comes the following statement: "I have come to the conclusion that it is far better to have our feast days definitely fixed beginning with Easter Sunday. In the division of the months, I do prefer to keep the existing arrangement of 12 months with the variations proposed by The World Calendar, four months of 31 days and the rest 30 days."

The Right Reverend Alejandro, Bishop of Matagalpa, Nicaragua, recently stated: "I wish to say that we regard this matter as very important and shall study it very carefully."

The tour of South America, just completed by Dr. Gajardo Reyes, is perhaps the most important development in world-wide calendar reform since the League of Nations meeting in 1931. On this trip, the Latin-American chairman was accompanied by the writer, who thus had an opportunity to observe at first hand the attitude of leading churchmen and governmental officials toward the movement. It is not too much to say that the Latin-American countries now form a solid bloc, which can be depended upon to appear in any future international conventions on this subject as a spearhead of advocacy of the 12-month equal-quarter plan.

For many years Dr. Gajardo Reyes, former Commander in the Chilean navy and director of the government astronomical observatory, has been interested in calendar reform. Because of his conviction that calendar reform was desirable and because of his belief that, of the two plans of reform advocated, the 12-month equal-quarter plan of revision was the more moderate, the less revolutionary, the more acceptable to the Latin-American people, he undertook to organize the Chilean people in an educational campaign to show the advantages of calendar reform and, if possible, to spread this knowledge to peoples of neighboring Latin-American states. Dr. Reyes' interesting discourses on calendar reform and its benefits to Latin-American peoples began to make their appearance in scientific journals in various parts of South America. They attracted the attention of statesmen and public leaders.

Early in 1934 Dr. Reyes formed the *Comite Latino-Americano del*

Calendario Mundial, with headquarters in Santiago. As a nucleus, he already had a national Chilean committee under the presidency of the eminent Salesian priest, the Reverend Father Valentin Panzarasa. Dr. Miguel Cruchaga Tocornal, Minister of Foreign Affairs of Chile, had become interested and had ordered an official study of the subject by Dr. Alejandro Serani, Minister of Labor. The latter's report to the Foreign Minister said in part: "This Ministry finds this reform of such manifest convenience, both for commercial life and business, as well as for the welfare of the working class, that it represents an advantage of great benefit to all nations. . . . In consideration of all these facts, this Department has the honor to request the Ministry of Foreign Relations to recommend this project to the consideration of the League of Nations, issuing instructions for the Chilean Delegation to favor this project before the League."

This report resulted in official action by Chile, approving calendar reform and the 12-month equal-quarter plan of revision, and news of this action was promptly forwarded to the League of Nations.

With this progress in Chile, other Latin-American states began to show a cooperative interest. Voluntary organizations, for study and promotion, began to be formed. Bolivia organized a calendar reform committee under the presidency of Senor Moises Santivanez of the Bolivian State Department, with representatives of education and business.

In Panama a similar interest was crystallized in the formation of a committee under the presidency of Senor Octavio Mendez Pereira, with a supporting group which included the official representation of Prof. Catalino Arrocha, Director of Public Instruction.

Costa Rica formed a committee under the chairmanship of the Minister of Education, Dr. Teodoro Picado. This group correlates the activities for calendar reform in the four sister Republics of Central America—Guatemala, Honduras, San Salvador and Nicaragua.

Later, the progressive Republic of Uruguay formed a committee under the presidency of Prof. Alberto Reyes Thevenet, representative of Uruguay at Geneva. This committee also undertook to bring calendar reform to the attention of the people of Paraguay, with a membership representing astronomy, education and business.

The activities of these various committees soon culminated in interest being aroused in the great Republic of Brazil. A very strong organization was initiated under the presidency of Capitan Radler de Aquino, a distinguished scientist. Dr. Sodre da Gama, Director of the Astronomical Observatory of Rio de Janeiro, a scientist of world-wide reputation, and Jose Frazao Milanez, representing the navy, became members of this committee.

Dr. Eduardo Posada, greatest living Latin-American historian, in announcing the organization of a Colombian committee, said: "I have always been interested in calendar reform, and I find this new project very proper

and wise. It is the one which will at last solve this complicated problem. The 13-month plan had its advantages, but the inconvenience of 13, which is not divisible into halves and quarters, made it impracticable. The new calendar which we are favoring fortunately continues the useful division of the year into 12 months." Other members of his committee are Dr. Jose Alvarez Lleras, Director of the National Astronomical Observatory, General Carlos Cortes Vargas, and Colonel Luis Acevedo F.

The network of Latin-American committees was completed by the organization of Argentina and Mexico. The former group is headed by Lieut.-General Luis Dellepiane, former Minister of War, and includes prominent representatives of science, education, business and the Church. In Mexico the committee on this subject is under the chairmanship of Dr. Joaquin Gallo, and includes the Ministers of Education, Economics and Foreign Affairs. This committee has already taken full official action, presenting to the Mexican government a motion for the notification of the League of Nations that Mexico definitely approves The World Calendar.

All these activities are linked together and coordinated by the central committee under Dr. Reyes, whose tour of South America was undertaken for the sole purpose of making the united Latin-American effort promptly and fully effective. In each country which he visited, he held conferences with the local committees and with various interested groups. He addressed audiences at the leading universities, held press conferences, and delivered a number of effective speeches over the most important radio hook-ups.

Dr. Reyes has a charming and commanding personality. His long-standing prominence in the Chilean government gave him an official welcome at each capital he visited, and his naval record—particularly his liaison service with the British navy during the World War—commanded military and naval honors wherever he went.

An example of his activities during his trip was his appearance over a special radio hook-up in Buenos Aires, where the facilities of the Argentine stations were reinforced by arrangements for rebroadcasting his address to Chile and Brazil. He was introduced to his unseen audience by General Dellepiane. The latter, in a brief address, pledged the most earnest efforts of the Argentine Republic on behalf of the movement for calendar reform, which he termed "a part of humanity's struggles for progress and welfare, for justice and truth." Dr. Reyes' address, delivered in Spanish, occupied about 30 minutes. He said in part: "The reform of the calendar, in which we are interestingly engaged, should be carried through and put in practice, because the present Gregorian Calendar, in use in almost every civilized country, has several defects, which are hampering the progress of the world and therefore should be corrected. All these defects are unnecessary and they can be overcome very easily by the

adoption of The World Calendar, which will give us a perpetual calendar with balanced and equal semesters and quarters.

"The great advantages of this plan can be seen at a glance. In the first place, it has a perfect symmetry and it achieves this perfection with a minimum of alteration or disturbance. Only seven days will be changed in the 365 days of the year. February will receive two additional days; March will lose one; April will gain one; May and August will lose one. The last day of December will become the *Dia del Ano* (Year Day).

"The great Republic of Argentina, justly proud of its great literary, political and military genius, Sarmiento, who established the two beautiful, edifying and wonderful statements of educational logic—'*Gobernar es Educar*' (to govern is to educate) and '*Escuela es un Santuario*' (school is a sanctuary), has determined to undertake leadership for the establishment of a new calendar, acceptance of which will be of unquestionable benefit to commerce, agriculture, industry, science, religion, education and the international relations of all civilized countries. Such leadership by Argentina is just and proper, for the Argentine mind has always led our continental aspirations. To prove this statement, it will be sufficient for me to pronounce one name: that name is Mitre, and in its five letters is condensed the story of a virtuous life, full of noble aspirations and labor. I am convinced that Argentina will render a good account of her leadership for the reform of the calendar, for she is known throughout the world as a protector of science, a lover of progress, and a school of great statesmen."

In Montevideo the Uruguayan committee informed Dr. Reyes that it has presented to the government of Uruguay a report on calendar reform, urging official approval of the 12-month equal-quarter plan of revision. Prof. Thevenet informed Dr. Reyes that the government is expected to act immediately in accordance with this report, and to issue corresponding instructions to its delegate at the League of Nations. Inasmuch as the Geneva delegate happens to be Prof. Thevenet himself, it may be assumed that the instructions will be efficiently and enthusiastically carried out.

An important meeting of the calendar reform committee of Brazil was held in Rio de Janeiro on Dr. Reyes' arrival there. Under the presidency of Capitan Radler de Aquino, plans were made for an educational campaign to inform the people of Brazil of the benefits of the reform of the calendar. The campaign includes a program of discussions among the great scientific, educational, religious and business groups of the country. This program was formally launched by a radio broadcast from all the important stations in Brazil, disseminating addresses delivered from the Radio Club of Brazil. Dr. Reyes was the principal speaker, introduced by Senor Jose Frazao Milanez, prominent naval officer. The latter emphasized the need for a full Brazilian cooperation in the movement for reform of the calendar. "A general cooperation is required," he said, "so that the adoption of The

World Calendar may be carried out on the date of January 1, 1939, as this date falls on a Sunday and thus the change from the old system to the new could be made without difficulty."

Dr. Reyes, in his address, stressed the fact that the Brazilian committee constituted "a very homogeneous group of scientific and educational leaders." He then told his audience of the progress accomplished in other Latin-American countries: "The government of Venezuela, through the authorized word of the Minister of Foreign Relations, Dr. Itriago Chacin, has already given its official approval to this plan. In Mexico the government has, through three of its leading ministers, given definite approval to The World Calendar. Uruguay has adopted it also.

"The attitude of the Catholic Church is every day more favorable to this plan, as the stabilization of Easter will facilitate greatly the practice of all religious services. A practical calendar for all the seasons is of such immense and incalculable benefit for all the religious, civil and social activities of Latin America that it is not possible really to calculate, at this time, the far-reaching results that it will have. It will bring harmony into human life; it will make for a stronger and more substantial equilibrium on which to establish the stability of all civilization, the welfare of mankind and even the peace of nations.

"An agreement should be reached with regard to calendar reform in the Fifth General Conference on Communications and Transit to be held by the League of Nations in 1936. This agreement will take the form of an international treaty which, when duly ratified by the legislative bodies of the various nations, will become law in all countries. This treaty will provide for all the changes and modifications necessary in the transition from the old to the new calendar. All the nations, all the religious bodies, and all national and international organizations, as well as every individual, should actively cooperate in seeing that this international agreement is ratified as soon after 1936 as possible.

"Toward this goal all the efforts of the nations, of the calendar reform organizations, of the churches and of all individuals should be directed, in order to give to future generations a calendar which will be the most perfect system for measuring time which knowledge of man can devise."

Dr. Reyes' tour was followed by invitations to lecture in the near future at the Universities of Rio de Janeiro, Montevideo and Buenos Aires. Entirely satisfied with the results of his meetings with the various calendar reform organizations throughout Latin America, Dr. Reyes feels certain that the republics of Latin America will present a united front for a reform of the calendar along the lines of a 12-month equal-quarter plan of revision, and that these states will be among the leaders in the world in supporting an international conference, called for the purpose of legislating this reform.

INTERNATIONAL DATE-LINE

By James L. C. Ford

DISCUSSION of calendar reform proposals, which stabilize the year by making the last day of December a "double Saturday," has focused considerable attention on the mysteries of the international date-line in mid-Pacific, where a "double day" is encountered by every traveler crossing from China to America.

Inasmuch as a revision of the calendar now appears to be inevitable, it should be interesting to get a clear idea of the effect of the double day, as indicated in its daily use of this device by travelers.

For many years I crossed the Pacific yearly. When I was ten years old, the double day impressed itself indelibly on my mind because it brought me a double birthday, with two successive birthday dinners and a double set of birthday presents. What more could a ten-year-old boy desire to fill his heart with joy and wonder?

My tenth birthday was Sunday, April 7. I was aboard the steamship President Jackson, bound from Shanghai to Seattle. The chef in the dining salon had baked a magnificent and highly decorative birthday cake for the occasion, and all my shipboard acquaintances had provided presents. Waking the next morning, I started reading the ship's paper, and the first thing that hit my eye was that it was dated "Sunday April 7," the same as yesterday. A little concentrated thinking, and I realized that this was the customary double day, marking the crossing of the international date-line along the 180th meridian.

I decided that I was entitled to another birthday celebration, and within the next two hours I convinced everybody concerned that my viewpoint was justified. There was an exact duplicate of the previous day's cake, and the passengers who had given me presents cheerfully repeated their performance. A good time was had by all, and none of us will ever forget this example of the workings of the international date-line.

This imaginary division, where the day begins, is a device created by the scientists and geographers and calendar experts. Oddly enough, it has hardly any legal status in terms of international law. It exists, like Magna Carta, by overwhelming sanction of long-standing general acceptance.

Roughly speaking, it coincides with the 180th meridian. But this coincidence is broken, for good and sufficient reasons, at both the north and south by two little zigzag notches. On the north it cuts out at a sharp angle, so as to put Siberia entirely on the west, and the Aleutian Islands entirely on the east. On the south it zigzags between Samoa and Fiji.

A remarkable illustration of its workings came to the attention of newspaper readers very recently. On April 25, 1935, the first two-way

telephone conversation around the world took place in New York City, when two officials of the American Telephone and Telegraph Company, using telephones only 50 feet apart, talked over a 23,000-mile telephone and radio circuit. The electric loop began and ended in the office of the telephone company. The voices girdled the globe in a tiny fraction of a second. One official spoke over a wire routed through San Francisco, Java, Amsterdam, London and back to New York. The other replied over a circuit that girdled the globe in the opposite direction, via England, Amsterdam, Java and San Francisco.

When Mr. Gifford, president of the telephone company, began his conversation at 9:30 New York time, the clock in San Francisco read 6:30 a.m., and the one in Java 10 p.m., while Big Ben in London tolled 2:30 p.m. In crossing the international date-line, the voices of the two Americans went from today into tomorrow and then back into today again before reaching their destination. "This is another step in the conquest of time and space by man," said Mr. Gifford to us of the press who were listening.

The international date-line is about 400 years old. It was 400 years ago that exploration caught up with science, and created in the minds of men the need for such an adjusting device. Suddenly coming into being at that time, it has been accepted ever since as a matter of course. Mariners have figured by it, the British Admiralty has outlined its accepted path by written order, individual countries have adapted their clocks and calendars to it. Every American newspaper reader comes in contact with it when he reads in his Monday paper an item or two of news which happened in Japan on Tuesday.

But not every newspaper reader understands the whys and hows of the meridional line which causes this paradox. He knows that there is such a thing, but the precise workings of it are as complicated to the uninitiated mind as the sailor's port-and-starboard are to the landlubber.

Here is a somewhat graphic parable form of explanation, as suggested by Roscoe Lamont in an excellent paper in *Popular Astronomy,* which seems to me to clarify the way the international date-line operates:

Suppose an aviator, Wiley Hawks, starts in his airplane on a round-the-world trip from London at noon on Monday, July 4. Heading westward, suppose his airplane covers exactly 15 degrees of longitude daily. There are 24 such longitudinal divisions, as the globe is divided into 360 degrees of longitude, so he should complete his trip and be back at his starting point in 24 days—or Thursday noon, July 28. The flier makes his trip as scheduled, covering 15 degrees daily. But in so doing, his day is 25 hours long, for when a person travels westward he lengthens his day by one hour for every 15 degrees, moving along with the motion of the sun.

Our slow but sure Wiley Hawks returns to London, he thought on

Thursday, July 28, having passed 24 days of 25 hours each, or 600 hours, en route. His friends in London also have lived 600 hours, but at the rate of 24 hours per day. They therefore congratulate him on returning Friday, July 29. He shakes his head in surprise and disagreement. But all the weight of evidence is against him. It must be July 29. Somewhere he slipped up in his calculations. He makes up his mind to try again.

Off he starts, traveling west again at the same rate of speed. This time he leaves London on Monday noon, August 1. After 12 days of 25 hours each, he finds himself at the 180th meridian. It is Saturday noon, August 13, and 300 hours have passed since Wiley Hawks took off from London. For his London friends, 12½ days have passed, making it Saturday midnight, August 13. Our flier does a little thinking, decides to call it Sunday noon, August 14, which would put him 12 hours ahead of London time. The 12 hours are absorbed by 12 days more of traveling for 25 hours each day, and Wiley Hawks lands once again in London and compares times with his friends. They agree! It is Friday noon, August 26.

So that is how the international date-line works. Wiley Hawks has proved it to himself; he has figured out the mystery of the day change.

The change could have been made anywhere, but as Wiley Hawks found out, the day first began at the 180th meridian, Sunday, August 14, having come into being there 12 hours before his arrival. Unless our flier changed his dates at that particular spot, his day after leaving the date-line would not have agreed with the day of countries over which he traveled. If Wiley Hawks had flown east instead of west, his day while traveling would have contained only 23 hours and only 552 hours would have been spent in circumnavigation. Therefore, when crossing the international date-line, the same day of the week and month would have to be counted twice. In other words, he would have gained an additional day or a double weekday.

The advantages of the location of the international date-line in mid-Pacific are obvious: it passes through vast expanses of water, uninhabited except by whales and occasional speeding liners. Therefore the change of date is not a source of constant confusion and shift for many people.

All parts of the earth cannot have the same day except for an instant. The meridian where the day is first ending has another meridian adjoining it on the east where the same day is just beginning. It is Sunday in New York before it is Sunday in Chicago. It is Sunday in London before it is Sunday in New York. Just where does Sunday begin? As our flier, Wiley Hawks, found out, Sunday, or any other day, begins at the international date-line. In fact, this characteristic gives the line its name—day dates from that point.

When Sunday begins at the international date-line, all the rest of the world still is in Saturday (that is, if the line coincided exactly with the 180th meridian—which it does not—and using local time). Sunday then

continues to begin in regular sequence westward around the world as each succeeding point passes the midnight hour of Saturday. Between the hemispheres stretches the line, an invisible but important rampart, separating the days. When all the world to the east of the international date-line is ready for Sunday to begin, the date-line itself has passed through all of Sunday and is ready for Monday.

Because of the variance between the 180th meridian and the irregular international date-line, each day lasts for 25 hours and 12 minutes. For this reason, three different days exist at the same time. When it is 12:01 a. m., Wednesday, at Cape Deshnef, Siberia, it is 11:17 a. m., Tuesday, at Greenwich, England, and 10:49 p. m., Monday, on Attu Island at the extreme west of the Aleutian group.

An interesting summary of the nature of the international date-line comes from Percival Lowell, the Far Eastern traveler: "The line is imaginary; it has not even an astronomical reason for existence, like the equator. It is purely and entirely an arbitrary convention; and yet its position is of exceeding importance to mankind. From the very convenience of this position we are apt to forget its value; for the line is the great day-origin. It sets, not the time of day merely, but the day itself. At the line two days meet. There, though time flows ceaselessly on, occurs that unnatural yet unavoidable jump of 24 hours and no one is there to be startled by the fact—no one to be perplexed in trying to reconcile the two incongruities, continuous time and discontinous day. There is nothing but the ocean and that is tenantless."

History tells of the reactions of the first men to come in actual contact with the phenomena of changing days involved in round-the-world voyages. Away back in the early 16th century, when Magellan led his little group of Spaniards on the first circumnavigation of the globe, Pigafetta, one of that daring group of explorers, comments on their surprise when nearing home to learn they were a day's reckoning behind the European world:

"Finally constrained by our great extremity, we went to the Cape Verde Islands. Wednesday July 9, we reached one of these islands called Saint James and immediately sent the boat ashore for food. We charged our men when they went ashore in the boat to ask what day it was and they told us it was Thursday with the Portuguese. We were greatly surprised for it was Wednesday with us, and we could not see how we had made a mistake; for I had set down every day without any interruption. However, as was told us later, it was no error but as the voyage had been made continually toward the west and we had returned to the same place as does the sun, we had made that gain of 24 hours, as is clearly seen."

Another quaint and pertinent passage from the contemporary chronicles of that day is to be found in "The Decades of the Newe Worlde. . . Written in the Latine tounge by Peter Martyr of Angleria, and translated in to Englysshe by Richarde Eden" in 1555. It deals with the return of the vessel *Victoria* to Seville, finally completing the long voyage which Ma-

ellan, who was to die on the yellow sands of the beach at Mactan, had tarted:

"And amonge other notable thynges by hym (Peter Martyr) wrytten as touchynge hat vyage, this is one, that the Spaniards hauynge sayled abowt three yeares and one oneth, and the most of them notynge the dayes, day by day (as is the manner of all hem that sayles by the Ocean), they found when they were returned to Spayne, that hey had lost one day. So that at theyr arryuall at the porte of Siuile beinge the eventh day of September, was by theyr accompt but the sixth day. And where as Don eter Martyr declared the strange effecte of this thynge to a certeyne excellente man ho for his singular lernynge was greatly aduaunced to honoure in his common welthe nd made Themperours ambassadoure, this woorthy gentelman who was also a greate hilosopher and Astronomer, answered that it coulde not otherwyse chaunce unto them auynge sayled three years continually, euer folowynge the soonne towarde the West. nd sayde furthermore that they of owlde tyme obserued that all suche as sayled beind the soonne towards the West, dyd greatly lengthen the day."

It is not surprising that Peter Martyr, in the early 16th century, received such clear and logical reasoning from his "certyne excellente man", who was Gaspari Contarini of Venice, known as one of the most erudite scholars of his age. Contarini had studied at the famous University of Padua in Copernicus' day, he had written many books of history and religion. In 1535, Pope Paul III gave him a cardinal's hat and crimson robes.

Peter Martyr, intrigued with this mystery of the missing day, treats of it again in his "Fifth Decade," saying that when he heard the sailors speak of the lost day, he told them perhaps the priests aboard the Magellan ships had deceived them by omitting it from their customary religious celebrations. But the sailors ridiculed this solution, saying they surely would have known of any such omission. Had the priests omitted one day, a day of the month and of the week, either by accident or design, they would have anticipated the modern procedure in all westward crossings of the international date-line. And on landing at their home port, there would have been no discrepancy in days.

But still the inquisitive Peter Martyr was not satisfied. He gives the final report of his conclusions—which coincide with modern thought in every instance—after a weighty conference with Contarini:

"Being much disquieted and troubled with that care, I conferred with Gaspari Contarini (a man not meanly instructed in all kinds of literature), who was then ambassador with the Emperor for his famous commonwealth of Venice. Whereby we know discussing the matter with divers arguments) that this strange report, never heard before, might very well be after this manner: This Castilian ship set sail from the Islands of Gorgades (Cape Verde Islands) towards the west, which way also the sun goeth. Thence it came to pass that having followed the sun, they had every day longer according to the quantity of the way they made, wherefore having perfited (compassed) the circle, which the sun performeth in twenty-four hours towards the west, consumed and spent one whole day, therefore it had fewer days by one than they who have that space of time kept one certain place of abode. But if the Portugal fleet, which saileth toward the east, should return again unto the Gorgades, continuing their course unto the east by this way and navigation, now first found and discovered to mortal men, no man would doubt, seeing they should have shorter days, having perfited the circle, but that twenty-four whole hours should remain unto them over and above,

and so one whole day, wherefore they should reckon more by one. And so if either fleet, to wit, the Castilian and the Portugal, had set sail the same day from the Gorgades, and the Castilian had sailed toward the west and the Portugal had toward the east, turning stern to stern, and had returned to the Gorgades by these diverse ways in the same space of time and at the same moment, if that day had been Thursday to the Gorgades, it had been Wednesday to the Castilian, to whom a whole day was consumed into longer days. But to the Portugal, to whom by shortening of the days one day remained over and above, the same day would be Friday. Let philosophers more deeply discuss this matter, we yield these reasons for the present."

The Spanish and Portuguese voyages of exploration resulted in many strange pseudo-scientific discoveries and contradictions, as man's expanding mind failed to keep pace with his expanding universe. The Philippine Islands have not always been on the Asiatic side of the international date-line although they are now. Until January 1, 1845, they were on the American side, insofar as hour and day were concerned, and had been ever since the Spaniards had settled there. But in the neighboring islands, such as the Moluccas, the Portuguese observed a calendar one day in advance of the Philippine date schedule. They had come to the Orient by way of the Cape of Good Hope, carrying out the plans of Henry the Navigator.

Back in Europe, Spain and Portugal had the same calendar and their days corresponded. Their explorers, however, had sailed to the Far East by different routes. Following the sun west, the Spaniards kept getting further and further behind the time of their home-land. The time of the Portuguese had advanced further and further ahead of that in Portugal for they had sailed toward the east, meeting the sun. When Magellan and the Spaniards reached the Philippines, they were 16 hours behind the time of Spain. The Portuguese, sailing the African route, were eight hours ahead of Europe. Thus the two colonies differed by exactly 24 hours.

Before the 16th century ended, the colonial Spaniards in Manila had adopted the Gregorian calendar, calling the day after October 4, October 15. But still the Portuguese continued to be one day ahead. The Spanish saw no advantage in reconciling the difference—their trade was principally with Spanish America. To follow the American day was more convenient than to agree with the Portuguese which would have meant skipping or repeating a day every time the Pacific was crossed.

This difference between the days of the two colonial possessions sometimes was forgotten. Thus, Acosta, Spanish historian of the 16th century, tells about a priest who set out from the Philippines for Macao. On his arrival at the Portuguese possession off the China coast, he went to church to celebrate the mass of Saint Athanasius but found he was a day too late to honor that saint. Acosta writes: "It happened to Father Alonse Sanches, of whom mention is made before, that parting from the Philippines, he arrived at Macao, the second day of Maie, according to their computation, and going to say the Masse of S. Athanasius, he found they

did celebrate the feast of the invention of the Holy Crosse, for that they did then reckon the third of Maie."

Spain's sway on the American continents weakened and eventually she lost her last colony on the western mainland after pillaging and plundering for gold and jewels. When this happened, there no longer was a close link between the Philippines and the New World and it became more convenient to have the islands and the mother country on the same side of the date line. Trading intensified through the Cape of Good Hope passage and consequently the difference in days between the two countries became more irksome. In 1844, over three centuries after the Spanish had settled in the Philippines, Claveria, Spanish governor-general, issued a decree directing that the day following Monday, December 30, 1844, be called Wednesday, January 1, 1845—skipping Tuesday, December 31, 1844. Since that time, the Philippines lie no longer in the distant West, but in the Far East, and are about eight hours in advance of their former mother country, Spain.

Another example of shifting days in countries on the border line of exploration and the date-line is to be found in Samoa, which lies just east of the date-line. Back in 1892 the King of Samoa celebrated the fourth of July twice in one week—to get over on the American side of the Line.

In the "Letters from Samoa" of Mrs. M. I. Stevenson, mother of Robert Louis Stevenson, there is a note dated "the second 4th July, 1892," which runs as follows:

> "Surely now I have been round the world, since at last I have done that to which I used to look forward. I have 'gained a day.' It seems that all this time we have been counting wrong, because in former days communication was entirely with Australia, and it was simpler and in every way more natural to follow the Australian calendar; but now that so many vessels come from San Francisco, the powers that be have decided to set this right and to adopt the date that belongs to our actual geographical position. To this end, therefore, we are ordered to keep two Mondays in this week, which will get us straight."

The use of the double day at the international date-line is a familiar example and illustration of the proposal made by advocates of calendar reform to employ a similar device at the end of each year, in order to stabilize the incidence of the weekdays throughout the year. There is no reason to believe that the adoption of such a system would not prove as beneficial as the use of the double day at the international meridian. It will enable the peoples of the world to keep time straight, to make the calendar ordered and dependable. It will regulate the calendar so that the year will always begin on Sunday, and the relationship of weekdays and month-days will be perpetually the same.

LESSONS FROM PLAYING CARDS

By Samuel Zovello

As an international student of the history of playing cards, the author has developed some highly interesting theories on the connection between playing cards and calendars. A monograph by him, published this year under the title "History and Origin of Playing Cards," discusses this subject in considerable detail. Under the stage name of "Zovello," the author has appeared in many theatres in an act featuring the magic of cards.

PLAYING CARDS, as we know them today, are probably a direct development of little one-week Egyptian card-calendars, which originally were combined into a pack of 52, to make a complete calendar for one year. The 53d card, now the joker, was originally provided to take care of the odd 365th day of the year: it was a card of good fortune.

The student of calendar reform might well go back into early Egyptian history and trace the origin of playing cards, for he may draw certain definite lessons regarding calendar reform from the story which they tell.

Knowledge of the calendar, among the ancient Egyptians, was the possession of the priesthood, carefully guarded as a religious secret by a sect of priests who were called "keepers of the days." They were the only ones who knew when to anticipate the rise of the River Nile, on which the life of Egypt depended. They alone knew when to give warning to the populace so that it could take to the hills for safety.

These priests kept the untutored masses ignorant of the calendar and thus fostered the belief that the priesthood possessed supernatural powers of divining the future. This belief was cultivated to such an extent that the masses believed the priests of Isis and Osiris could even foresee the personal future of an individual.

The calendars on which the priests relied for their predictions were, in the early days, engraved on huge stone slabs kept carefully guarded in the inner sanctuaries of the temples. With the invention of papyrus as a medium for transcription, the cumbersome and unwieldy stone tablets were superseded by rolls of papyrus, which permitted reproduction of the calendar on a smaller and more convenient record.

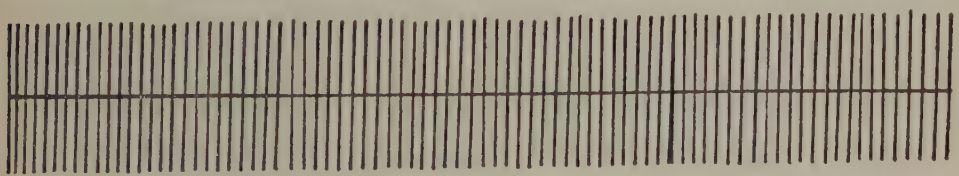
But the new calendars were almost too portable. They were easily lost or stolen, and in case of loss or theft, precautions had to be taken to prevent the new possessor from using their secret information. So the papyrus rolls were divided into sections which could easily be fitted together when the priests wished to consult them. Separation of the papyrus into weeks was the logical outcome. The calendar became a package of 52 equal strips or cards, with one extra piece for the 365th day. This extra card was made similar in size to all the others, to render the pack uniform.

Fortune-telling from cards is thus shown to be one of the most ancient developments of the use of this material. The secret of the priesthood eventually came into the hands of unscrupulous charlatans, who used the calendar cards to predict not only the appearance of a certain day or date as the time most suitable for planting, harvesting or fishing, but also any other private or public event and ultimately of course the personal fortune of any individual. The charlatans who used cards for this purpose wandered over the world during the ensuing centuries and became known as "gypsies," this word being of course a corruption of "Egyptians."

But now to get down to the history of the Egyptian calendar, and its lessons for present-day reformers. The most significant fact is this: that the Egypt of pre-history had a 13-month calendar, which it eventually rejected on the basis of increasing knowledge, replacing it with the 12-month division which is the basis and foundation of our present-day calendar. In other words, any current proposals for a 13-month year are a backward kind of reform, suggesting the restoration of a system which the scientific knowledge of Egypt displaced as awkward and unsuitable.

In the early dawn of civilization, wandering nomadic tribes were attracted to the Nile valley because of the richness of its soil and the ease of cultivation. The only drawback to this paradise was the periodic flooding of the land which constituted a grave menace to its inhabitants. In due time, however, these ancient peoples learned that the floods could be predicted, and that the climate of the Nile valley expressed itself in three seasons: first, the inundation, or period in which the fast-rising river flooded the land; second, the sowing and planting season, in which the waters subsided; third, the harvest or dry season.

Survival in that region necessitated development of a system for anticipating these changes. Observant members of the priesthood learned to foretell climatic changes by the migratory flights of birds, by the breeding habits of beasts and fish, by the positions of the sun and stars. Eventually some early scientific genius discovered that the days and nights between each constantly recurring period could be counted. The priests became counters of days, and 365 days and nights constituted a cycle, or year.

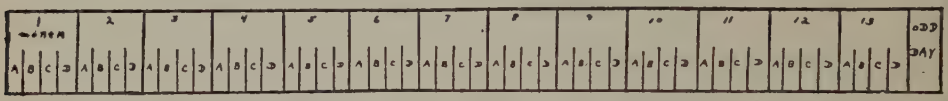


The first attempt at making a calendar must necessarily have been something like the above diagram—365 lines divided at the center, with each half-line representing a day or a night.

As time went on, this crude calendar developed by observation of the

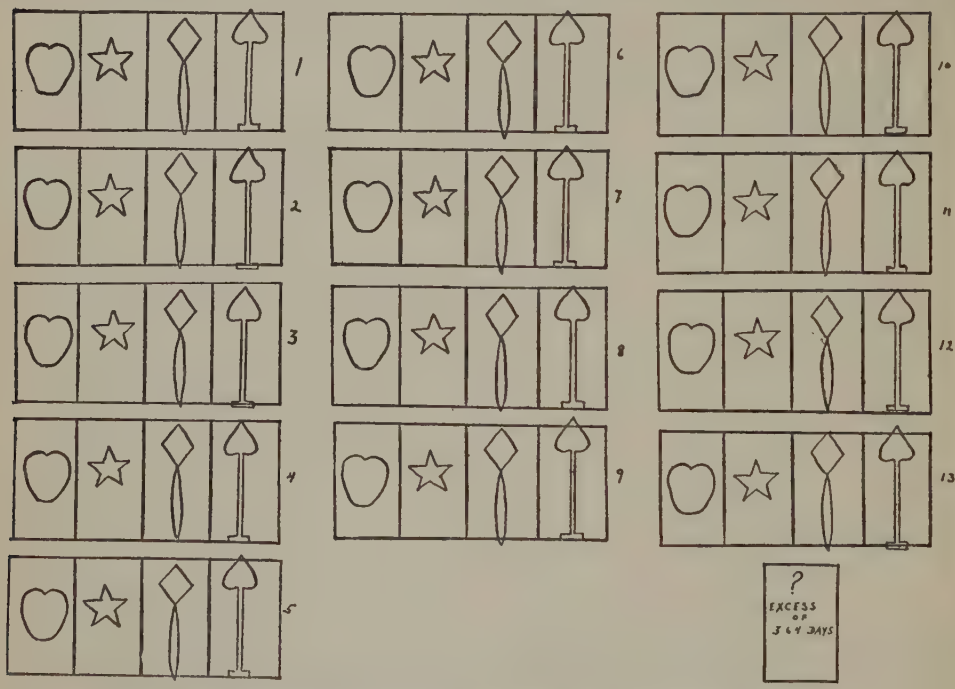
phases of the moon. From a very early period the Egyptians possessed knowledge of a 13-lunar-month year. Each month was made to consist of exactly 28 days. The 13 lunar months thus totalled 364 days, with an odd day left over.

By further observation, each month was in turn divided into four equal parts of seven days each. The calendar probably resembled the following:



Primitive Egyptian calendar: Thirteen months of 28 days each, with an extra or intercalary day at the end of the year.

Within the months it appears that each week was designated by a certain sign or symbol. The first week of the month was indicated by a cup, the second by a pentacle or five-pointed star, the third by a sword or spear-



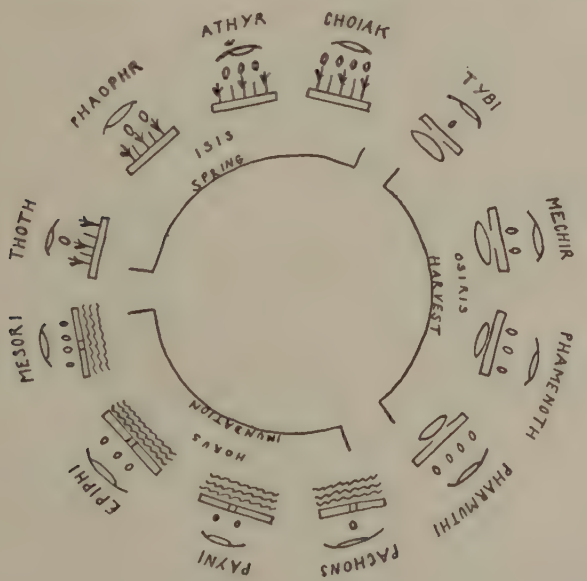
Early hieroglyphic symbols for the weeks, as grouped into months.

head, the fourth by a spade. The origin of these emblems is associated with the Egyptian belief that the universe was composed of four elements —water, earth, air and fire. The first week of every month pertained to water, the second to earth, the third to air, the fourth to fire. These ele-

ments were portrayed symbolically: the cup for water, the star for earth because the heavenly bodies were supposed to direct and control all earthly activities, the spearhead for air, and finally for fire the small shovel used for handling fuel in homes and temples. The symbolic calendar of the 13 months was essentially as shown on the previous page.

The abandonment of the 13-month calendar appears to have been simultaneous with the necessity of remedying the error which had developed from the fact that the Egyptians had hitherto used a year of 365 days, whereas the actual solar year contained 365¼ days. Every four years a complete day was lost, and over a period of a few centuries the dates of spring had been pushed into those of harvest. To King Aseth goes the distinction of having legislated this reform, installing a three-season year with four months to each season, or 12 months in all, with an occasional adjustment by the priest-astronomers to allow for what we now know as the quadrennial leap-year day.

In the hieroglyphic writings the crescent is used to indicate the moons which formerly figured in the division of the year. Ellipses beneath the



Egyptian solar calendar of 12 months and 3 seasons

crescents showed whether the indicated month was the first, second, third or fourth of the season. Wavy lines represented the season of flood, flowers spoke for spring, and the sign of harvest was a large house or granary.

Besides the hieroglyphic signs, each of the months bore a name derived from some outstanding Egyptian personality, whether mythical or factual.

Names such as Thoth, Phoaphr and Athyr originated in a manner similar to that by which we moderns have named March from Mars, June from Juno, and July from Julius Caesar. The Egyptian seasons paid tribute to Osiris, Isis and Horus, their son.

When the figures of Osiris, Isis and Horus were drawn on the papyrus card-calendars, all their attributes were included, as well as the marks and symbols which served to indicate their power and position.

In the evolution of these card-calendars into our modern playing cards, the figures, marks and symbols have been frequently altered. The first historic record of playing cards dates back to about the year 900, in India. They were introduced into Spain and Italy from Greece in the 14th century, and to this date the Spanish name for cards is "naipes," derived from the city of Nauplion, Greece. However, it was a Frenchman, Jacques Gringoner, who developed the modern playing card, using it as a means of entertaining the French king, Charles VI, during his fits of insanity. Gringoner went back to Egypt for his models and largely retained the original Egyptian calendar symbols. Our present-day pack of playing cards is an almost exact duplicate of the ancient Egyptian calendar.

The 52 cards represent the 52 weeks of the year; the 53d card or joker is the excess day over 52 weeks. Adding the value of all the cards or pips —that is, ace-1, deuce-2, jack-11, queen-12, and king-13, gives 364; the joker brings the total to 365. The suits composed of 13 cards each are derived from the 13 lunar months, rejected by the Egyptians for a more scientific and divisible calendar of 12 months. The alternating black and red colors of the cards originated from the papyrus calendar-segments, which were colored in order to differentiate the weekly sections of the calendar. The two-way design on face cards represents day and night.

The symbols on the cards have, it is true, undergone some change. The Egyptian five-pointed star was replaced by the French fleur-de-lis, now the club. But examination of any club card will show that it really is still a pentacle, each of the small circles and the two points of the base make it actually the equivalent of a five-pointed star. The sword or spearhead has been simplified into a diamond. The spade is retained, and the cup is now a heart, owing to a curious misinterpretation of the old French word for chalice, *chorur,* into *coeur,* or heart.

Among the court cards, the jack is Horus, who still in clubs and diamonds holds a rod, with which in Egyptian mythology he was supposed to measure the rising of the Nile; in spades he holds an hour glass, for he was the god of time in old Egypt; in hearts he holds a leaf, which was originally a lotus, a flower which blossomed immediately after the subsidence of the Nile waters. The Queen of the playing cards is Isis, goddess of Spring. The King is Osiris, god of the harvest, and his four cards represent the four glorious months of his section of the calendar.

PROGRESS IN CENTRAL EUROPE

by CHARLES MICHAEL MEISTER

Associated Press Correspondent in Vienna

SUPERFICIAL observation might lead to the conclusion that the small countries of Central Europe and the Balkans would naturally be reactionary in their attitude toward the growing movement for a rational 12-month calendar. But as a matter of fact these countries—Austria, Hungary, Czechoslovakia, Rumania, Yugoslavia, Turkey, Bulgaria and Greece—are prepared to welcome the change. Though old in history, they are young as political entities, and of recent years their peoples have developed a love of progress comparable with Americans.

The fact is that an active effort to promote the proposed reform has been started in several of these countries. Greece and Turkey have official committees on calendar revision. Austria, Czechoslovakia and Yugoslavia were prominently represented by official government delegates who took a prominent part in the 1931 international conference on the subject. Rumania and Bulgaria were also represented at that conference, but did not take any prominent part. The Yugoslavian delegate, M. Djouritchitch, presided over the Preparatory Conference of 1931 as chairman. The Greek delegation, under Professor Eginitis, was equally prominent, owing to the fact that the whole activity of the League of Nations in calendar reform was started more than 10 years ago by Professor Eginitis. But the small countries are reluctant to assume actual international leadership.

Though many of them are biding their time, men fully conscious of the necessity for eliminating the inconveniences of the old calendar exist in each of the countries in this section of the Continent. Whenever any further action is taken through the League of Nations or through an international conference, they will be prepared to explain the advantages of the new calendar to their countrymen.

Many of these men see special indirect advantages in the calendar reform movement for this especially troubled section of a harassed world. Ancient rivalries and youthful nationalism have here tended to make all forms of international action more difficult. Immediate experience of the obvious advantages conferred by a uniform, unchanging calendar, it is argued, would suggest the advantages of other forms of cooperation. Rumania has already eliminated some confusion by changing from the Julian to the Gregorian calendar.

In Yugoslavia there are two calendars in current use. The court of little King Peter and the Serbian sections of the country celebrate Christmas and other religious holidays according to the dates in the Julian calendar, while the Roman Catholic sections of the same country follow

the Gregorian calendar. The Yugoslav Regency, solemnly reminded by the dying words of the late King Alexander of its duty to defend the nation's unity, has definitely stated that it would like to eliminate the double calendar, a glaring symbol of disunity.

But any attempt to enforce observance of either one of the two current calendars would open old wounds and strengthen the forces of disunity. Religious susceptibilities would be aroused, and questions of prestige would cause interminable difficulties. Therefore, world acceptance of a new calendar would be welcomed by Yugoslavia with joy. Neither the Roman Catholic Croatians nor the Orthodox Serbs could say that the government had discriminated in favor of one or the other.

Hampered ever since the war by ever-growing economic difficulties, business men of Austria and Czechoslovakia, the most highly developed industrially of the countries under discussion, also have special interest in supporting a reform which would simplify their problems. Operating in a territory in which the Julian and Gregorian calendars meet, they would gain, in addition to the benefits accruing to business men the world over, elimination of confusion in holidays due to use of both old calendars.

International groups already existing in Central Europe and the Balkans have recently indicated their desire to further speedy adherence of their members, to an international agreement on calendar reform. The Little Entente countries, Czechoslovakia, Rumania and Yugoslavia, have decided to take joint action on international affairs, and on this basis they will be prepared, whenever the question comes up, to take united action regarding calendar reform. In Greece and Turkey, the movement in favor of the balanced 12-month calendar has already attained considerable proportions. The Greek Government has acted officially in making a declaration in favor of The World Calendar, while Turkey has an active calendar reform committee under the chairmanship of Dr. Ihsan Ali, close friend of Mustapha Kemal and official spokesman of the Ankara government at all international gatherings dealing directly or indirectly with this subject. The influence of Greece and Turkey in favor of a new calendar has already had a marked and stimulating influence on the foreign offices of Rumania, Yugoslavia and Bulgaria.

While Bulgaria is not a member of the Little Entente or of the Balkan Pact, Bulgarians are the most practical-minded of the Balkan peoples, and as such have been quick to see the advantages of rationalizing the calendar. And as members of the Eastern Orthodox Church they have the same reasons as Serbs and Rumanians for supporting a change placing them in line with the western world without offending religious sentiments.

Action of the Oecumenical Patriarch in giving his blessing to the revised 12-month calendar is of the greatest importance to the three Orthodox countries, Yugoslavia, Rumania and Bulgaria. It may be ex-

pected to lead to a reconsideration of the hasty support Yugoslavia once gave to the 13-month calendar, which would add to Balkan business difficulties by offering a quarter-year of three and one-fourth months. In the Balkans the quarter-year is the important time division for accounting.

The fact that the Vatican has encouraged discussion of calendar reform within the Catholic Church and has ruled that there is no dogmatic objection to a revised calendar, is of importance in Austria and Hungary, both predominantly Catholic. Support given the reform movement by Protestant clergymen throughout the world, and by the Universal Christian Council, their world organization, has had a marked effect on their co-religionists in Hungary, Austria, Czechoslovakia and Rumania.

The support or neutrality of religious leaders is having an important effect in overcoming the Balkan peasant's inbred objections to change. The peasant parties, in fact, are all lined up in support of the proposed change. Of course the attitude of the progressive elements, sure to favor all reforms of real value, is of more importance than that of the peasants, who have little to say in the governmental affairs of any of the countries of South-Eastern Europe.

Those advocates of rationalization who recall that the two important calendar reforms of the past were put into effect by imperial decree and papal edict will not overlook the fact that such direct action is today possible in Yugoslavia, Austria and Bulgaria. The political situation is not much different in Hungary, which remains loyal to parliamentary government, but has been ruled by the same party for 15 years.

But, as was pointed out recently by the Prime Minister of one of the Balkan States, none of these small countries can be expected to take action alone, or to assume a position of leadership in a movement of world-wide scope. As creators and leaders of the Occidental civilization in which these new countries wish to perfect themselves, England, France and Germany enjoy the greatest prestige. Action already taken by leaders in these three large countries has had much effect in the smaller countries, which are ready for further suggestions from London, Paris and Berlin.

The most practical suggestion yet made for further immediate action in Central and South-Eastern Europe is that which comes from a group of leading journalists in Vienna, namely, that a permanent international committee be organized in Vienna to study the reform in relation to the peculiar conditions in this part of Europe. It is possible that such a committee could be ready to function by the beginning of the next academic year. While research work would be concentrated in such leading educational institutions as the Vienna University, the Peter Pazmandy University in Budapest, Belgrade and Zagreb Universities, and the ancient Carolus University in Prague, governments would be asked to name representatives of religion, commerce and politics to take part in the work.

MERCHANDISING PROBLEMS

By JEROME S. SCHWARTZ

Advertising Department, R. H. Macy & Co., Inc., New York

IN the early days of merchandising, when a merchant did a business in thousands, it was not necessary to keep the meticulous records of sales, costs, taxes and other items that the present-day merchant needs with his buying and selling running into the millions. The entrepreneur of the cambric-and-gingham era made few merchandising comparisons and the only statistic that held more than a passing interest for him was the one his bookkeeper presented him showing profit or loss. Today the large merchant has a staff of trained statisticians who keep him supplied not only with the results of completed ventures but with the figures upon which he will base his future enterprises. And it is in the use of this tabulated material that he finds himself continually handicapped by the imperfections of the calendar now in use.

In all his pondering and planning and peering into the future, the retailer uses his past experience expressed in the sales of last year, last month, or the corresponding month of the last ten years, as the basis for his actions. These comparisons must be as accurate as possible, for in present-day merchandising the stiff competition between stores, especially those in the popular-price class, makes gambling and guesswork inadvisable. When the net profit returnable to the owners is sometimes as low as one per cent per turnover, figures and predictions must be accurate if any profit is expected at all.

The large retailers found long ago that they could not make accurate comparisons when the period in question differed in the number of business days from the period with which it was being paired. They therefore devised systems of keeping statistics that would make possible more logical comparisons. Such methods as the following were hit upon. The year is divided into two 26-week "seasons," the Spring season beginning on the Monday nearest February 1, and the Fall season beginning on the Monday nearest August 1. The retailer in all cases has been obliged to go off on a slight tangent from the Gregorian calendar. As a consequence he sometimes finds that his fourth week of June has three of its six business days in July.

These systems are more expedient than perfect. A major difficulty immediately ensues, because department store executives use government and other statistics which are based on periods that do not coincide with the ones they have created in their own business. They heartily wish that all compilations could be made on a single basis.

To show the inadequacies of the present calendar in retailing, a prominent department store executive recently said: "We compare our sales figures with those of other stores in our class. Suppose we find that we are not getting our share of the business in a certain line. We have been buying and selling our goods as cheaply as our competitors, but perhaps under changing conditions the location of our store is against us. We decide to change our policy and instead of handling 'better' merchandise, to sell 'bargain' merchandise. There are some things I would like to know, though, before I take a step that may cost my store millions. Perhaps I would like to find the relationship of the growing or declining industrial payroll total to the business of lower-price department stores. I would like also to see the relationship between this business and the money in circulation or the demand for various types of merchandise. Of course I can get plenty of figures, baskets full of them, but they will not give me accurate results because they are based on different periods of time, complicated by all the vagaries and inaccuracies of the calendar. The payroll total, for instance, may be based on a period from May 1 to May 30, while the figures for lower-price department store sales to which I would like to relate the payroll total, may be based on an entirely different period, with a varying number of Saturdays and Sundays. The other figures I want will likewise be only partially related. Attempts are made by my statisticians to bring the figures into relation, but the juggling must necessarily be done by arbitrary means and the picture derived from them cannot therefore be anything but arbitrary."

Under the present calendar it is particularly difficult to make accurate comparisons of sales between years for March or April. Easter may fall in either month. The retailer can say that business this March was down sharply because Easter did not come until April 21, whereas last year it was in March. He can tell that Easter in this case is a factor causing a comparative decline in sales in March. But he cannot tell whether sales would have been down anyway if the Easter factor were eliminated, that is, if Easter had been on the same date in both years. All he knows is that the wandering date of Easter has snarled up his figures for at least two months of the year, and to some extent thrown a shadow over his statistics for February and May as well. No amount of weighting, bridging or reconciling can give a correct picture.

With The World Calendar in operation and Easter stabilized, exact relationships could be established between years for daily, weekly, monthly and seasonal figures. Some adjustments would still be necessary, but simplification would mean enormous strides toward greater accuracy.

Because abnormal Christmas business makes it inadvisable to move the closing date of the fiscal year to its more usual date at the end of December, it is doubtful whether department stores will ever discontinue

their custom of closing the fiscal year at the end of January. Nevertheless, because their yardsticks would then be the calendar week and the calendar month instead of the retailers' synthetic "week" and "month," no great statistical difficulties would be created. For example, to reconcile government figures for the first six months of 1935 with a store figure for the same period would merely involve adding the store figure for the last month of the "Fall" season to the first five months of the "Spring" season.

Not until all compilations of business statistics are made in accordance with a logically devised calendar, which merchandisers can use in common with others, will statistics achieve their ultimate value in retail planning. The World Calendar would be a direct means of increasing the efficiency of these statistics. Its logical construction would definitely assist accurate predictions necessary to economical conduct of modern department stores.

The natural seasons of the year have always been important factors in retail trade. In the temperate zones merchandising depends heavily upon the fact that in cold weather certain things are used and in warm weather other things are needed. The "things" include not only clothing but almost all the other articles which department stores sell. There is winter furniture and summer furniture, there are winter perfumes and summer perfumes, beach clothes and ski clothes, formal dishes for city homes and gay china for summer cottages, indoor toys and outdoor toys. The examples are many. Retailers have come to know that clothing is not the only item the weather affects, and a department store in winter is a much different place than it is in the warmer months.

Adherence to weather changes, moreover, is becoming more and more important as the retailer finds new items to promote for special seasonal use. The proposed World Calendar would do nothing to upset this tendency, but such a scheme as the thirteen-month calendar would produce a lag between the seasons as they are fixed in the buying public's mind and as they would exist on the calendar. People by habit have come to consider June 1 as the date to begin looking about in earnest for summer things. On June 1 the weather usually shows signs of becoming something more than balmy and that date has become a signal for commencing summer buying. If June 1 were moved back 11 days, reckoning from the first of the year, it would seriously upset the date of the beginning of summer buying. There would be no definite signal such as the beginning of a month, no common agreement as to when warm weather buying should begin, because the public would often be without the stimulation of a few hot days when the traditional date of June 1 arrived.

The innovation of a strange thirteenth month called "Sol," as proposed in the 13-month calendar would add to the complexity of retail merchandising, and further tend to throw off balance established buying customs. July and August are traditionally poor months for retailers, not only

because many people are away from the cities, but because even on occasional comfortable days many customers do not come to the stores, believing that the best offerings are not made in the summer time. They refrain especially from buying such major items as radios, washing machines and furniture, except where some stores have made efforts to move this merchandise with special promotions such as August Furniture Sales. Sol, coming after the last "Spring" month, June, would be considered another summer month and prolong the midsummer agony of merchandisers.

Just as any calendar which upsets buying customs is undesirable, any revised calendar which upsets established trade practices will prove a burden. Most department stores have a backbone of "charge" customers. One New York store sends out more than 100,000 statements a month. The expense of making 100,000 additional computations and mailing 100,000 extra statements would be thousands of dollars. Perhaps more important than the actual extra expenditure would be the undesirable psychological effect on the recipients of the extra statements. People do not like to receive bills, and receiving bills 13 times a year instead of 12 would tend to reduce sales.

Mention has been made of the bad effect that the variable date of Easter has on the keeping of retail statistics. Its moving date also complicates selling, and sales can be delayed or actually lost when Easter falls in March. Retailers, especially in the northern part of the United States, are frequently faced with the strange paradox of having to try to sell warm weather merchandise in cold weather. After the expenditure of much money in advertising and other style-setting promotion work, retailers and manufacturers have advanced the seasons in such lines as millinery sufficiently to sell Spring merchandise during the winter. But this is one of the few instances in which their efforts have been successful.

Easter should be the signal for intense clothing buying, just as Christmas is the signal for a wave of gift buying. Some fashion-conscious people will buy style merchandise in anticipation of warm weather, but by far the greater number of shoppers (men notoriously), wait until the stimulus of warm weather actually strikes them to put out their good money. Fixation of the Easter date in early April would do much to insure a good demand for clothing and accessories, not at the end of winter where it must be forced, but at the beginning of Spring where it grows naturally. A saving would be accomplished in the extra expenditures in advertising designed to move buying into an artificial channel. Other savings would be made because it would not be necessary to mark down the price of large quantities of goods left on the counters because of cold weather during the buying season. Increased returns would result from allowing buying to proceed under the stimulation of the changing weather rather than under the stimulation of unprofitable "sales" designed to move goods out of season.

The perpetual 12-month calendar is a necessity in retailing. It holds the means of obtaining better statistical information and insures the making of more accurate business predictions. It does not interfere with established trade practices. It does much to promote logical buying and profitable selling, especially in the Easter period. For these reasons, the current proposals for calendar reform will be watched with interest by all wide-awake retailers.

STELLAR YARDSTICKS

A Study of Calendar Reform for Schools

By Amy Morris Lillie

INTRODUCTORY NOTE

By John Dewey

Professor Emeritus of Philosophy, Columbia University

From the usual educational standpoint, the calendar is an interesting and indeed fascinating problem. We take it for granted just as we take our clocks and watches for granted. Miss Lillie has brought out in a clear and accurate way the observing and inventing that lie back of our present methods of measuring time. Since one of the great differences between savage and civilized man is that the latter works by the clock and the calendar, since all industry, commerce and social intercourse depends upon the controlled measurement of time, knowledge of the kind Miss Lillie gives ought to be a normal part of the instruction of every child.

But there is an especial reason for giving importance to instruction in this field at the present time. There is constantly growing agitation for a change in our present annual calendar. Many business houses are already keeping their books on systems different from the traditional one. The League of Nations at Geneva has had the matter under consideration. The movement will increase still more. Ultimately all authorities agree that there will be a change. In order that there may be the best possible judgment as to the kind of change to be made and that it may be carried into effect successfully, the rising generation ought to be acquainted with the problem and its factors.

Miss Lillie has made an admirable presentation, using her long and successful experience as a teacher of the young to make the approach clear and interesting. Moreover, children who become interested in discussing the pros and cons of the change and the comparative merits of different plans will have their desire aroused to learn about the important chapter of human history which is back of our present system. I cannot commend too highly to the attention of educators Miss Lillie's admirable statement.

WE ALL know what it means to measure anything with a yardstick. We use a stiff strip of wood just thirty-six inches long, with each inch marked by a line and divided into halves, quarters, eighths and sixteenths. Then we have larger divisions of the yardstick, each twelve inches long, and there are three of these which we call feet, so three feet or thirty-six inches make the length of the yardstick—no more and no less. We cannot take liberties with it by adding so much as a sixteenth of an inch: everything we measure must yield to its rigid rule, so, whether it be the material for a party dress or the tweed for a suit, just thirty-six inches are allowed to each length of the stick, and if we do not follow its measurements carefully, the dress or suit will not be a success.

We are constantly having to measure something by length, weight or quantity, but, whatever it is we use to measure with—the yardstick, the pound weight or the quart measure—the same care must be taken not to add or subtract even a tiny bit from the amount called for.

But there is a kind of measurement that has been a puzzle to people of every age, from the earliest days of man's life on the earth to our own time, and the reason is this: what they have been trying to measure just won't be fitted into any even divisions of a yardstick, and they have had to make a sort of elastic yardstick which can be stretched here or squeezed

a bit there until some kind of fit can be arranged. Now this sounds rather ridiculous until I tell you that I am talking about measuring *Time:* then it is easy to see how a very special kind of yardstick is needed, for Time is something we can't handle, and the measurement of Time has to do with the movement of stars and planets. It is a hard puzzle that man has had to work out and he has been at it for thousands of years. Many are the yardsticks he has fashioned for his use, and, because it has taken a study of the stars for him to be able to do this, I call them Stellar Yardsticks.

Of course there can be only one way of measuring Time, since we cannot handle it, and that is by discovering something which happens over and over again at regular periods, then we are able to fit the time between into whatever smaller periods we wish. For instance, in school the lesson periods are all divided between the ringing of the opening and closing bells which can be depended upon to ring regularly.

Ages ago, long before men, women and children had gathered together in towns and cities, they roamed about in little companies living in the out-of-doors and building only rude shelters when necessary. But in those far-away days, when time was not as important as it is today, men saw that they could plan their life around two things that never failed to happen: the appearance of the sun on one side of the world and, after a journey across the heavens, its disappearance on the other side, thus making periods of light and darkness. So day and night were the beginning, and later these became divided into hours, minutes and seconds.

As years went on, men changed their roaming, tribal habits to gather in villages where they could get food for themselves and their families by planting seed in the ground and raising crops. This we call the beginning of civilization. They had found out that the sun had an important effect upon the earth and also that water was needed to make the soil soft and productive, so a great deal of this settling was done near the big rivers, and the river valleys of Asia and northern Africa were the homes of the early civilizations. Two of these civilizations in particular are remembered today because of the greatness and power which came to them later. One was the civilization of Chaldea and Babylonia which grew up on the plains of Mesopotamia along the Tigris and Euphrates Rivers, and the other that of Egypt which followed the valley of the Nile River for a thousand miles into the heart of Africa. The Chaldeans were ancestors of the Babylonians so I call them one civilization. What the night watchers of the sky had discovered on the Chaldean plains was handed on to the Babylonians, who added to that knowledge and together they gave to the world of the future not only the beginnings of time measurement—our Stellar Yardstick or calendar—but wisdom on which the science of astronomy was built.

In Egypt the Yardstick was to have a new division and for a very natural reason. The Nile River flowed through miles and miles of desert

land which would never have produced a bit of grain or crops of any kind if it had not been for one thing: at certain times it overflowed its banks and spread for a great distance, covering the country with a rich deposit that made it very fertile. After the waters had gone back within their bounds again, the ground was just right for sowing seed. This flooding of the Nile happened regularly once a year, so sowing the seed and then reaping the harvest followed naturally and the Egyptians had three seasons which they called Inundation, Sowing, and Harvest, making three large divisions to their Yardstick. Then they divided the month into three parts of ten days each, probably because ten was the number of fingers on both hands and was easy to count. Here was a much more complicated Yardstick and you would suppose it might prove fairly successful in working out this time problem. But by this time it had been discovered in both Babylonia and Egypt that the sun took a little over 365 days to make its yearly journey through the heavens, and if you will multiply the thirty days in each month by the twelve months in the Yardstick, you will find it makes 360 days, which was five days shorter than it should be.

This was where some stretching of the Yardstick had to take place, and the Egyptians arranged it quite conveniently, putting the extra days at the end of the year as religious holidays.

While Egypt and Babylonia were experimenting with their Yardsticks, still another ancient civilization far to the east in Asia, was measuring time in its own way and according to the needs of its own life, for this need of daily life has been the chief reason why man has bothered to measure time at all. China was a vast empire as old or older than any of the ancient civilizations we know anything about, and it is the only one that has kept its own character to this day. Over four thousand years ago, then, Chinese astronomers were making their discoveries and their measurements of the heavenly bodies to arrive at much the same conclusions about them as the Babylonians and Egyptians, but their Yardstick was an extremely elastic affair. While the year was about the same length, and was divided into twelve months, the months were not even. One had 29 days and the next 30 and so on through the year. This was not successful every year as the sun and moon did not march in step to this tune (as indeed they do not march in step to any tune) for any length of time.

It was necessary to give the sun time to catch up every once in awhile by adding an extra lap for the moon, in other words, another month to the Yardstick. They found they had to do this seven times out of nineteen, so the years were grouped in periods or cycles of nineteen and a sort of sliding Yardstick used, pulled out to 13 months about once in three years.

Another very ancient Yardstick was that used by the Jewish Patriarchs in Old Testament Bible times. This was only five months long and each month had thirty days, making 150 days to the year, which may explain

the great ages said to have been reached by these Patriarchs in the Bible stories. With a year less than half the length of ours they might have lived many more years without having been more than seventy-five or eighty of our longer years. They probably got the length of their year from the number of full moons they could count on the fingers of one hand, for they were a nomadic or wandering people until they were taken captive by the Egyptians and learned the true length of the year.

If we jump to the other side of the world, we find on our own North American continent at an early day, although much later than the periods we have been thinking about, another people planning their Yardstick. These people are known as the Mayas and their civilization covered parts of Central America, which, as you know, is south of Mexico and tapers into a little neck of land, the Isthmus of Panama, which connects North with South America. It is not known just how old this civilization is, but at least six hundred years before the time of Christ, people were counting their days, months and years in a quaint way. They strung beads on a string for days, shells for months, while each year was marked by a jade bead. Their months had only 20 days like the number of fingers and toes on both hands and feet. There were 18 of such months which made 360 days, and five extra days, which made a short month each year.

While we are on the North American continent, I am sure you would like to know something of the way the Indians have measured time. Nobody knows just how old the Indian is, but in the southwestern part of our country there are ruins which show that centuries before the discovery of America, the Indians of Casa Grande were measuring time by sun-holes. In the mud walls of an old watch tower may be seen two holes placed so that the sun at certain times of the year sends its rays through both walls to mark a point on a third wall. This happens in March and September and was probably used by Indians to time the planting and harvesting of crops.

But there is a very practical way in which Indians of a later day have fitted time to their simple needs and it will seem like a game to us for it meant using little bundles of sticks to count their days. It was serious business to the Indians, for their food depended upon it, and every morning a stick had to be taken from the bundle on one side of the sleeping-bag and put on the other side. Five bundles each holding thirty sticks were given out when the first spring thunder brought rain. Five was an easy number to count on the fingers, and thirty, as you will have guessed, was the number of days which the Indians had discovered passed between the new moons. Perhaps you will recognize a likeness between this division and the Yardstick of the early Jewish tribes which also had five months.

Now we must jump back to the other side of the world again and look at two more Yardsticks which were used years before the time of Christ. They belonged to two very important civilizations, Greece and Rome. The

Greeks used an adaptation of the Egyptian calendar. The Romans, very early in their history, had a funny short Yardstick with only ten instead of twelve divisions. Six of these months had thirty days and the other four had thirty-one, which made 304 days to the year. But about the seventh century before Christ, a Roman king, Numa Pompilius, added two months, January and February, to the end of the Yardstick. This made a better length, but as the months were uneven, having 29 or 30 days, there were still only 354 days to the year. The Romans were constantly altering their calendar and making adjustments to suit themselves, until the time of Julius Caesar. As our own Calendar is a descendant of the one Julius Caesar finally adopted, we must see just how he went to work.

To help him in fixing up a reliable Yardstick that could not be stretched or squeezed for any personal reason, thus putting the seasons and things in general out of joint, Caesar called upon an Egyptian astronomer named Sosigenes. You will remember that Egypt had a very satisfactory Yardstick of twelve months, each having thirty days, with five extra days devoted to religious festivals at the end of each year. Julius Caesar decided to use this Yardstick but he distributed the five extra days evenly.

Our division of the month into seven-day weeks did not come until much later. The Romans kept the Egyptian division of three parts and called them Calends, Nones and Ides. Our word Calendar comes from the first of these Latin words.

While there are traces of seven-day weeks in Chaldean, Egyptian and Greek records, this division of the month comes most directly from the Jews. All through the Roman Empire were to be found communities of Christian Jews which were keeping one day out of every seven for rest and meditation. Constantine noticed what a difference this made in their lives. They were happier, lived longer, and could do more work, so he decided in the year 325 B.C. to make the seven-day week the rule in the Roman Empire, feeling it would be a great benefit to humanity. The weekday names were taken from the planets: Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn. You see this most clearly in the French language: Mardi, Day of Mars; Mercredi, Day of Mercury; Jeudi, Day of Jupiter; Vendredi, Day of Venus, etc. The Anglo-Saxon gods, Tiw, Woden, Thor, Freya, later gave to our English tongue the names of Tuesday, Wednesday, Thursday and Friday, covering up their earlier origin.

The Romans, of course, knew the sun's year to be a fraction over 365 days long, and that this fraction amounted to practically a whole day every four years, so this extra day was added at the end of the fourth year, which was known as Leap Year. Still there was a slight error which amounted to about eleven minutes each year. One would have thought this small difference need not be noticed, but as the centuries passed the minutes grew into days, until, toward the end of the sixteenth century,

the Spring Equinox had stepped ahead to March 11th instead of staying where it belonged, on March 21st. As it was particularly important to the church to keep the Spring Equinox in its place because of the celebration of Easter, Pope Gregory XIII decided to put things straight. He therefore, in 1582, issued a decree saying that the dates in October of that year should skip from the fifth to the fifteenth, leaving out ten days, and making a slight revision of the Leap Year rule. This is our present calendar.

We must now look carefully at this Stellar Yardstick, for we want to decide whether it is still good enough to measure time for the needs of our world. Throughout the ages, as we have seen, the Yardstick was satisfactory only when it fitted the needs of people and governments. It was important for people to have food, so the first Yardsticks must measure time for planting and reaping; later the Roman government and others had to plan seasons for the more complicated life of an Empire, so the Yardstick had to be changed. Today people are beginning to think that this same Yardstick is unreliable and ought to be changed again.

The truth is, the world itself is a different place than it was 350 years ago when Pope Gregory XIII put the last touches on our Yardstick or Calendar, and it is something like riding in an antique model of automobile to be using it now. This change in the world has been brought about by easier communication between all nations which modern inventions have made possible. Ages ago each community or country lived to itself alone, for there were no such things as telegraph, telephone, or even railroads. Traveling was done with great difficulty on camels or horses and took a lot of time; there were no great fleets of ships carrying people and cargoes to all parts of the globe, as travel by sea did not venture far from the shores of those countries bordering on the Mediterranean Sea: northern Africa, southern Europe and Asia-Minor. It was not until explorers started adventuring across oceans that the vast reaches of the globe were realized. By degrees through the centuries, the people of the world have been drawn together until today almost anywhere can be reached by radio.

Now a time-measuring Yardstick today, as you will easily see, must be one which can fit the whole world and not one or even several parts of it. It was all very well in the past to have Yardsticks which met the needs of certain countries, because those countries had a life of their own apart from the rest of the world, but today the rest of the world comes knocking at their doors whether they will or not, and time measurements must be alike or there will be all kinds of difficulties. In many respects our calendar is unsatisfactory. Let us look at some of its weak spots.

Suppose our Yardstick of three even feet each having twelve inches should be divided into feet of eleven, twelve, and thirteen inches. The number of inches in the Yardstick would still be thirty-six, but the foot divisions would be of unequal length, and, in measuring by feet, one would

have to know which kind of foot to use and it would mean lots of calculating. This is exactly what makes our Stellar Yardstick awkward. The twelve months of the year can be nicely divided into four parts or quarters, and the world's business is carried on, to a large extent, by quarterly measurements and calculations, but the awkward part is that the quarters themselves are not even. The first quarter (Jan., Feb., March) has 90 days, or 91 in Leap Year; the second (April, May, June) has 91 days; the last two quarters have 92 days. This also makes the half years unequal: the first half has 181 (or 2) days and the second half 184 days. Of course, the uneven months that the Roman Emperors fixed are the cause of this.

There is another inconvenient thing about our Yardstick. Every year we have to have a new one, because the weekday names of the 365 days are differently arranged. You know if Christmas Day comes on Monday one year it will fall on Tuesday the next, so we have to consult our calendar whenever we wish to know the day upon which any holiday will occur, because it changes every year. We are used to this and each year look at the new calendar to find out what day Christmas or Easter or our birthday will fall upon, or when the vacations at school will begin and end, without realizing what a great deal of work must be done in fitting these dates into calendar tables for the year, or how much they affect life and welfare.

Do you ever think of the amount of work it takes for the heads of our schools to arrange the school year? Holidays and vacations as well as periods of study must be carefully measured and fitted into a number of weeks in order that a certain amount of work may be accomplished and all the school activities regulated. It is very important to know on what day of the week certain dates will fall, and, as these are different every year, all the work has to be done and a new schedule arranged each fall before school starts. How much easier it would be if there were one calendar or Yardstick that could fit the *whole world* and do it *year after year* in the *same way*. Then if school were to start the day following Labor Day, it would always have the same date and not come sometimes on the second of September and sometimes on the eighth, while schedules for one year would do every year. We would learn the almanac at school, like the multiplication table. There have been many plans for a new Yardstick, but the trouble has been that while they might fit some of the people some of the time, they did not fit all the people all the time.

Within the past few years, however, two plans have been suggested which seem most nearly what the world needs. These are both perpetual, meaning that they provide for a Yardstick which will measure time the same way every year through future ages. Sunday, January first, will always be Sunday, January first, and New Year's Day will no longer slip through the days of the week as it does now. In the same way, you can always count on your birthday coming a certain day of the week and need

not run to the calendar to find out what day this or that holiday falls upon. We shall now discover, if we can, which of these two plans has the better chance of meeting the approval of our world with its millions of people belonging to different countries and races, but so strangely united.

One of these two plans, called The International Fixed Calendar, proposes a Yardstick divided into thirteen parts; that is, the year would have thirteen instead of twelve months, and each month would have an equal number of weeks and days—four weeks of seven days, making twenty-eight days to the month. But this, you will quickly calculate, makes only 364 days instead of 365, to say nothing of the 366 days in Leap Year. Well, the extra day is added at the end of the year and is called Year Day, December 29th. In Leap Year, another extra day is inserted after June 28th. Another question which I am sure must have occurred to you is: "How about the thirteenth month? Where does it come, and how is it named?" It would be placed between June and July, and named Sol.

The other plan for a new Yardstick, which has for its name The World Calendar, keeps the twelve-month division of the year. Thus far it agrees with our present calendar, but it has a more orderly arrangement of days than the Roman Emperors made when they fixed the length of the months in such higgledy-piggledy fashion. The twelve-month year is divided into four equal quarters of 91 days, or 13 weeks, and the first month of each quarter has 31 days while the other two have 30 days. These equal quarters correspond with the four seasons, upon which all the Yardsticks of antiquity are based, and seem a more natural division of the year which the sun measures with solstices and equinoxes.

Now, if you have been busy with your arithmetic again, you will have discovered that this plan, like the thirteen-month, totals only 364 days. In both cases the extra day is added at the end of the year, and in Leap Year a day is added at the end of June. With The World Calendar plan, each *quarter* repeats itself instead of each *month*, as in the thirteen-month Yardstick. In both Yardsticks every *year* repeats itself.

So here we have two plans, either of which will give us a more regular Yardstick than the one we now use and which, I am sure you will agree, the world has outgrown. Our choice will depend upon which comes nearer meeting the needs of all races and lands today.

If you would be interested in comparing the two proposed Yardsticks, draw two diagrams and divide one into thirteen parts and the other into twelve. Then make your half and quarter divisions. Fill these in with months, weeks, and days to correspond with the divisions of our Stellar Yardstick or Calendar. You will find, in both cases, that the quarters have 91 days or 13 weeks; but, when it comes to months, the thirteen-month Yardstick will involve you in fractions: 3¼ months to each quarterly division, while the twelve-month Yardstick has three complete months.

VIGNETTES OF HISTORY

By MARGARET BECKER KULP

Executive Secretary of the State Federation of Pennsylvania Women

Study of calendar reform by women's clubs, as a part of their regular cultural or current-events programs, has been recommended by Mrs. Kulp and many other leaders among national clubwomen. In connection with the working out of such a program, Mrs. Kulp has published a "study outline," suggesting the lines along which the subject might be most usefully presented. The following article is taken from the introductory pages of her pamphlet.

CALENDAR reform? Why not? Down through the centuries man has sought to improve all phases of life and living, but our calendar, the most humanizing factor in life, the force by which all living is directed and regulated, has not been remodeled for 353 years!

The calendar is older than civilization itself. And so is calendar reform. Back in the beginning of things, when man was in the childhood of the race, he observed that floods and harvests marched by with a certain rhythmic precision, and he fashioned the first crude calendar by making simple drawings on the walls of his cave to measure the passage of time. Then he became aware that the moon waxed and waned with regularity, that the intervals from moon to moon provided longer periods by which he could count on his fingers the time between the floods and harvests. He came to realize that the spring and fall were just so many moons apart, and he set to work to revise his first crude calendar by creating calendars of stone and wood upon which he carved a record of the moon-months which marked the transition of the seasons.

This "science," gleaned before recorded time, was the humanizing force that led primitive man out of darkness into the dawn of civilization. The need for calendar knowledge compelled him to study the heavens and thus astronomy was born. Strange to relate, astronomy sprang up simultaneously and separately in many parts of the world. The relationship between the moon, the stars, the sun, and the seasons was discovered independently by Babylonians, Egyptians, and other ancient races in Europe, Africa, and Asia. The month (moonth), owes its origin to the period of the phases of the moon. Persians, Arabs, and all Mohammedan races figured time by a calendar whose months were practically equal to the moon's periodic changes. Such was the calendar of the ancient Greeks. Our own American Indian ingeniously named the months corresponding to our own calendar months: Cold Moon, Hunger Moon, Crow Moon, Grass Moon, Planting Moon, Rose Moon, Thunder Moon, Green Corn Moon, Harvest Moon, Hunting Moon, Frosty Moon, and Long Night Moon.

Always did primitive man instinctively divide the year into four sea-

sons, and each season into three moon-periods, as do the unlettered savages of today. But as time went on it was found that the astronomical year does not contain an exact number of lunar months and that it is very difficult to build up a lunar calendar which has any accord or harmony with the sun. The Mohammedan calendar, for instance, composed of precisely 12 lunar months, is much shorter than the solar calendar, and the seasons in the Mohammedan reckoning make their way through the whole circle of the year in a comparatively short time. The Jewish religion still follows the lunar calendar, but to avoid the difficulty inherent in the Mohammedan calendar an additional month must be inserted occasionally to bring the calendar in accord with the seasons. The ancient Greeks endeavored to meet this difficulty by a combination of long and short years. Their short years, called "defective," contained 12 months; their long years, called "abundant," contained 13 months. The two kinds of years were scattered adroitly through a cycle of 19 years. The calendars of the Japanese and the Chinese are particularly picturesque. The Japanese, it is said, "have plenty of time." Even today they employ several different ways of reckoning the days and months and years. They have both solar and lunar time; Japanese, Chinese, and Occidental time. They have two national calendars, and several special periods. Of the two purely Japanese calendars, one reckons time from the mythological founding of the Empire in 660 B.C., and is known as KIGEN, or history-beginning; the other is the special period called MEIJI, or Enlightened Rule, which began after the accession of the Emperor Meiji.

Under the old Japanese calendar there were 24 half-monthly periods whose names indicated the weather, and which the farmer carefully followed in planning his labors. Beginning in February, they were named (grouped by quarter-years) : Rise of Spring, Rain Water, Awakening of Insects, Vernal Equinox, Clear and Bright, Cereal Rain; Rise of Summer, Little Filling, Grain in the Ear, Summer Solstice, Little Heat, Great Heat; Rise of Autumn, Limit of Heat, White Dew, Autumn Equinox, Cold Dew, Frost Fall; Rise of Winter, Little Snow, Great Snow, Winter Solstice, Little Cold, Great Cold.

The ancient Chinese year was lunar, but its commencement was regulated by the sun. New year fell on the first new moon after the sun enters Aquarius, which made it come not before January 21st nor after February 19th. Besides the division of the year into lunar months, the year was apportioned into 24 *tsieh*, or "terms," of about fifteen days each, depending on the position of the sun. Their names had reference to the seasons of the year and obvious changes in nature at the time they occur, as Rain Water, Vernal Equinox, Spiked Grain, Little Heat, etc. The zodiac, or "yellow road," was divided into 28 Siu or Kung, "constellations," or "Lunar Mansions," and further divided into twelve Signs or Palaces which were named after the twelve branches or animals representing them. Thus we

have the names—beginning with Aquarius—of the rat, the ox, tiger, hare, dragon, snake, horse, sheep, monkey, cock, dog, and bear. In the Chinese study of astronomy and time reckoning, there is a certain amount of beauty in what may be called the romantic side of this study. Like the Japanese they observe several periods which are called festivals, and woven into these festivals are legends as old as the country itself.

Then came the Roman reformers with progressive tendencies. The Egyptians had been using for more than 4,000 years a calendar of 360 days—12 months of 30 days each, to which were added, by the reformers of that day, an intercalary period of extra yearly days to bring the year even with the Egyptian sun. In the year 46 B.C., during his reign, Julius Caesar, under Egyptian guidance, substituted the solar calendar for Rome's less exact lunar calendar. Caesar's calendar contained 365¼ days, each fourth year was to be a leap year with 366 days. The months had alternately 30 and 31 days; February alone, as the last day of the year, was given 29 days, with a thirtieth day added in leap years.

The Julian calendar endured for about sixteen centuries, the only reform measures being made by his successor, Augustus Caesar. The Emperor Augustus could not bear the thought that the month dedicated to him, August, should have fewer days than the month, July, dedicated to Julius Caesar, so he changed the distribution of the days of the months.

In 325 A.D. at the Council of Nicea, Constantine the Great inaugurated the 7-day week which became general throughout the Roman Empire, supplanting the old division of the month into Ides, Nones, and Kalends.

The next reformer was Pope Gregory XIII. For more than three centuries before his time there had been active agitation for calendar reform. For, by calculations that had been made back in the Middle Ages, it was known that a year does not contain a full 365¼ days. Too many leap years had been intercalated, with the result that in the northern hemisphere the beginning of the year gradually became further removed from the shortest day. In 1582 Pope Gregory undertook to revise the calendar to its present form. His reform, known as the Gregorian Calendar, was a great contribution to world progress. It is not perfect, nor free from errors or inconveniences, in fact it has many grave defects which should be remedied, but it has given fairly good service for 350 years. It is more than a mere man-made measuring rod. It has traditions of deep meaning and great significance in the history and religions of the races, for priests were its founders and guardians as well as astronomers, mathematicians, and scientists.

Again, in these times of progress, there is active agitation for calendar revision. Reform is recognized and admitted everywhere, but any innovations or departures from the Gregorian Calendar—which is astronomically sound in its monthly and quarterly divisions of the solar year—should not be unnecessarily drastic or severe. True, the calendar has marked irregu-

larities in the discrepancy between the lengths of the quarter years, in the divergence between the lengths of the months, in the lack of consonance between the incidence of weekdays and days of the month, and in the tiresome wandering about of the Easter date over a period of 35 days, but these shortcomings should be remedied by intelligent revision rather than by a complete upheaval of the whole calendar system.

No innovation should be adopted which will introduce greater defects than those which we seek to remedy. Any new calendar should carefully retain the adequate and desirable features of the present one. Any changes that are made in calendar revision should be such as to cause the least possible upheaval and disturbance in the transitional stage. For calendar reform is an international, not a national matter, and therefore no changes can possibly be considered that are not generally acceptable to all nations and all peoples. Calendar reform affects very deeply the inbred habits and traditions of every man, woman and child in every nation of the world. And yet, it is a great stride forward in international understanding to strive to unify the calendars of the world.

Of such importance to the nations is the matter of calendar revision that the International Conference of the League of Nations has had it under consideration, and will discuss it again at Geneva in 1936. Any agreement made by the League will no doubt take the form of a treaty, which will require separate ratification by many governments before becoming law. If an accord is reached at the Conference the new calendar would not become operative until January 1, 1939, as it is advisable to inaugurate a new calendar when the first day of the year falls on Sunday.

More than 500 plans have been submitted to the League of Nations, a pertinent indication of the growing sentiment for calendar revision. There has been opposition, too. Every kind of correction which could be imagined has been offered, until the mere examination of plans has become a wearisome task. All proposals comprising improvements of too impractical a character to constitute reform have been finally eliminated and two main groups have been retained from which final selection will be made.

These two main proposals are based on the fact that it is impossible to establish a calendar containing months and quarters of equal length from a year of 365 days and in that way eliminate the essential difficulties and lacunae inherent in the present calendar. Accordingly these plans propose adopting as basis a year of 364 days, while the 365th day would be considered as a special "Year-End Day." In leap years there would be two special days, which, it is proposed, should be public holidays.

Until The World Calendar, a revised twelve-month year, was presented to the American public, only one proposal had been seriously offered for consideration. This was the thirteen-month plan.

CHAMBER OF COMMERCE ACTS

Report by Calendar Reform Committee of the Chamber of Commerce of the State of New York

ADOPTED APRIL 4, 1935

Resolved, That the Chamber of Commerce of the State of New York hereby records its opinion that the present Gregorian calendar is exceedingly unsatisfactory in its bearing, not only upon the conduct of commercial and financial relations, but also upon all activities of the individual, whether they pertain to leisure or work; and, be it

Resolved, That the Chamber advocates a world-wide reform of the calendar to correct the irregularities, and the illogical and inconsistent phases of the system; and, be it

Resolved, That the Chamber believes that of the two leading proposals for calendar reform, the one advocated by The World Calendar Association to establish a Twelve-Month Perpetual Calendar is the more desirable; and be it further

Resolved, That the Chamber urges upon the Government Authorities that they use their good offices to bring about consideration by the League of Nations in 1936 of the subject of calendar reform.

IT SEEMS conclusively established that calendar reform is a matter of sufficient importance to warrant the great effort and the extensive campaign of education necessary to win for it general and world-wide acceptance.

The League of Nations has had calendar reform under consideration for several years. In 1927 the League suggested that national committees on calendar reform be organized in different countries. Many such committees are now working for reform. At the same time, resolutions urging a general conference on calendar reform have been addressed to the League of Nations by many international and national groups, among them the International Chamber of Commerce, the World Federation of Educational Associations, the American Bankers Association, the American Bar Association and the National Academy of Science.

In the United States an organization, known as the National Committee on Calendar Simplification, has given the matter serious study, and in 1929, after a year's investigation, made a report which was submitted to the League of Nations. This report set forth that it had been found that more than eighty per cent of representative national, state and local organizations, extending over large fields of activities in this country, were in favor of calendar reform; and that the participation of the United States in a world conference to consider the matter was also advocated.

As the situation stands today, there are only two important proposals for calendar reform. These are the so-called International Fixed Calendar

EDITOR'S NOTE.—The official publication of this report is accompanied by the following notice: "This report was mailed to all members of the Chamber five days before the meeting and copies were also placed in the hands of each member attending the meeting, when opportunity was given for discussion. The vote thereon, therefore, can fairly be said to represent the opinion of the entire membership. The meetings of the Chamber are attended by three or four hundred members. Both resolutions and report were unanimously adopted."

of thirteen months and the so-called World Calendar of twelve months, or Twelve-Month Perpetual Calendar. Both these plans have many advocates.

The thirteen-month calendar is, like the present calendar, based on a year of 365 days with a quadrennial Leap Year; but the year is divided into thirteen months of four weeks or twenty-eight days each. A new month, Sol, is to be inserted between June and July, and following the month of December there will be a "Year Day," the 365th of the year. In Leap Year an extra day will be placed between June 28 and the beginning of the new month. It is a perpetual calendar. That is to say, there is no change from year to year, and each week begins on Sunday.

The twelve-month calendar, known as the Twelve-Month Perpetual Calendar, involves a far less radical change. The months, while not of even length, are so arranged that each half year and each quarter year will contain the same number of days. This is accomplished by giving to the first month thirty-one days, and the two following months thirty days. This scheme is repeated four times. In this arrangement the first month of each quarter begins on a Sunday, the second month of each quarter on Wednesday, and the third month of each quarter on Friday. This calendar, like the other, provides for a Year-End Day and a Leap-Year Day to be holidays, and not to count as a weekday.

A vast amount of evidence, some favoring a twelve-month and some a thirteen-month calendar, has been examined by your Sub-Committee. It is convinced that the predominance of evidence is in favor of the twelve-month year, and that the majority of the people of the world hold a similar view. The conclusion is general that the business world will receive far more benefits from universal adoption of the so-called World Calendar of twelve months.

In the first place, the maintenance of twelve months in the year will be accepted with less opposition by the many millions of unthinking individuals to whom calendar changes are of no particular personal advantage but to whom the continuity with the past means much. Also, the division of the year into four equal quarters of ninety-one days each will provide many of the advantages of the thirteen-month calendar for accounting purposes. Similar months and weeks of different years can be compared as accurately as under the thirteen-month system, which is of far more importance. At the same time, no difficulty would exist in comparing periods with our present Gregorian calendar. Obviously, in the twelve-month calendar, months and weeks of the year cannot be compared one with another as easily as can those of the thirteen-month calendar.

Many businesses have adopted the thirteen-month-period year for cost accounting, manufacturing and merchandising comparisons; but on any quarterly basis of accounting, in which the general public is more often interested, a twelve-month year is superior. Under a thirteen-month

calendar the number of monthly transactions per annum are increased with a consequent increase in operating costs, and some difficulty is presented in transactions involving rents, wages, salaries, interest charges, etc. The World Calendar system, by avoiding the inconvenient fraction thirteen, would enable a change to the new system to be made smoothly and with little effect on the mental attitude of the average citizen.

Only two religious groups, comparatively small in number, oppose any change from the present Gregorian calendar. So far as holidays are concerned, each religious faith takes the stand that these are not a matter of calendar reform, but rather one of special enactment by their particular religious organizations. Numerous different calendars are observed throughout the world by religious faiths, although in most countries business and civil activities are carried on under the Gregorian calendar.

It is expected that a twelve-month calendar will enlist greater political support than a thirteen-month plan. This conclusion is based on the well-known fact that political leaders in general will not advocate any reform which will disturb a considerable percentage of their constituents, particularly when there is available an alternative plan far less disturbing. This is an important point in favor of the twelve-month plan, because calendar reform can only be accomplished through political agencies, and through joint political action by all nations.

Information has reached your Committee that the League of Nations is prepared to place the question of Calendar Reform on its agenda for 1936, provided at least two important nations request such action. The year 1936 is regarded as a very good year in which to begin a broad consideration of this subject because any international plan would require several years to secure general adoption. Attention has been called to the fact that the next year in which the present calendar year begins on Sunday is 1939, and that the next succeeding year which begins on Sunday is 1950. Both plans of Calendar Reform suggest Sunday as the first day of the year, so that if Calendar Reform is to be accomplished it must be put into effect in 1939, or not until 1950, hence the importance of placing it on the League of Nations agenda for 1936.

Respectfully submitted,

HOWARD C. SMITH, *Chairman*
Member Executive Committee, Chamber of Commerce of the State of New York

J. STEWART BAKER
President, Bank of the Manhattan Company

WALDRON P. BELKNAP
Vice-President, Bankers Trust Co.

FREDERICK H. HURDMAN
Hurdman and Cranstoun, Chartered Public Accountants

WILLIAM R. K. TAYLOR
W. R. K. Taylor & Co., Investment Bankers

OPINION OF ACTUARIES

Report of a Questionnaire Issued by the United Press

IT HAS been said that insurance actuaries are the most conservative of all professional men in the matter of proposals for calendar reform. This viewpoint is expressed in the report of a committee of the American Statistical Association, which says: "In some fields of interest there is a negative attitude to a change in the calendar: this is true of such fields as insurance."

To test this "negative" attitude, the United Press sent a questionnaire to all members of the three important actuarial organizations—the Actuarial Society of America, the Casualty Actuarial Society and the American Institute of Actuaries. A total of 163 replies was received. The answers to the questions submitted were as follows:

1. *Should the present calendar be changed?* Yes, 118; No, 37; Indefinite, 8. Percentage favoring calendar reform, 76.1.

2. *Do you favor legislative action for reform within 5 years?* Yes, 99; No. 34. No answer or indefinite, 30. Percentage favoring action, 74.4.

3. *Which of the two major plans for a new calendar do you prefer?* 12-month plan, 126; 13-month plan, 16. Indefinite, 21. Percentage favoring 12-month, 88.7.

4. *What action should the United States take?* Legislation, "active steps" or adoption, 57; international conference or cooperation, 25; no immediate action, 33; non-committal or no answer, 48.

It may be gathered from these replies that insurance actuaries favor calendar reform by a vote of about 3 to 1. They prefer the 12-month plan of revision by nearly 8 to 1.

Some of the comments made by actuaries answering the questionnaire are appended herewith.

T. W. GERBER
United Press Associations,
New York City.

Alabama. "Of the two major plans, I favor the 12-month equal-quarter," says Alex C. Wellman of the Protective Life Insurance Co.

California. "The United States should take the initiative in definite legislative action," writes Carl E. Herfurth of Los Angeles. "I have not gone into the question exhaustively, but favor reform on the 12-month basis," states Marcus Gunn of the California-Western States Life. "Operation of a statistical department would be considerably aided and the resulting statistics made more uniform by adoption of the 12-month equal-quarter plan; the U. S. government should try to work out an international agreement through the Postal Union or some similar convention," suggests W. S. Hollies of the Occidental Life. "The United States should take positive action for adoption of the 12-month equal-quarter calendar," declares C. H. Tookey of the Occidental Life. "The 12-month plan is the most practical; Congress should go on record as ready to cooperate with other nations for its adoption; the United States might well take the initiative by calling an international conference," comments Walter

F. Sullivan of the Associated Indemnity. "The 12-month plan is better, because of its adaptability to comparative statistics of business during quarter and half years," says John J. Taheny of Associated Indemnity. "The government should appoint a first-rank committee to canvass the matter," writes A. H. Mowbray of the University of California. "I would favor any legislative method which would be orderly and would make universal the change to the equal-quarter calendar," suggests Harold H. Buckman of the California-Western States Life. "I wonder if a constitutional amendment would be necessary," asks J. P. Bowerman of Los Angeles.

Connecticut. "I am mildly in favor of the 12-month equal-quarter plan," writes Ward Van B. Hart of the Connecticut General. "The United States should take the lead," declares Richard H. Getman of the Travelers, and his opinion is echoed by W. A. Poissant of the same company. "Congress should pass an act to become effective when similar action is taken by the League of Nations," suggests Fred S. Garrison of Travelers Indemnity. "The United States should cooperate with other governments looking toward change," says W. R. Williamson of Travelers. "There should be definite legislative action," writes John B. Lienhard of the Connecticut General, as does W. N. Bagley of Travelers. "The government should take all the action possible," states F. T. Perkins of Aetna. "The World Court might be consulted; certainly there should be definite legislative action toward this reform," declares Alden T. Bunyan of Phoenix Mutual. "I favor the 12-month equal-quarter plan," urges A. N. Matthews of Travelers. "The U. S. should cooperate with other major nations to obtain uniform action," says J. R. Larus of the Phoenix Mutual.

Delaware. "The 12-month equal-quarter plan is the only one to be considered; I think the United States might invite delegates from other nations to a discussion of the matter," suggests G. H. Amerman of Continental-American Life.

District of Columbia. "The United States should take legislative action, contingent on approval by other countries," says L. K. Crippen of Acacia Mutual.

Illinois. "The change to the equal-quarter plan would be advantageous if adopted universally," writes Bruce Batho of the Franklin Life. "I think the calendar should be changed, but I don't believe such a change is pressing at this time," states O. E. Outwater of the Association of Railway Employees. "Our government should propose international action; the arguments for the revised 12-month calendar seem to me conclusive," declares H. R. Corbett of Chicago.

Indiana. "It would be desirable to have definite legislative action for adoption of the equal-quarter plan," suggests W. A. Jenkins of Lincoln National. "The 12-month plan for a new calendar is much better from all angles," comments R. B. Sturtevant of American Central Life. "The simplest modification should prevail; I was very much interested in reading the arguments for The World Calendar," says A. B. Ambler, Jr., of Lincoln National. "I favor the 12-month plan for a new calendar," writes B. G. Stagg of Fort Wayne. "The 12-month plan is better than the present calendar and should be adopted," declares E. L. Marshall of Lafayette.

Iowa. "I emphatically favor the equal-quarter plan; a campaign of education and study should be carried on; the government might well appoint a committee of experts," suggests H. L. Rietz of Iowa City. "I favor legislative action," declares W. D. MacKinnon of Des Moines, as does R. G. Hunter of Iowa Equitable.

Maine. "The equal-quarter plan is the best; if adopted, some people will remember all the days of the year in the same way that they remember how to tell time on the face of a watch," writes J. L. Roberts of Brunswick.

Maryland. "If either plan is adopted, I would prefer the equal-quarter proposal," decides R. W. Gallon of New Amsterdam Casualty.

Massachusetts. "The United States should take whatever action is necessary for world-wide uniformity in adopting the equal-quarter calendar," urges W. J. Constable of the Lumberman's Mutual. "Once the United States makes the change, other nations will follow suit," suggests A. C. Patton of Worcester. "The government should support this proposal by legislation," declares A. T. Maclean of the Massachusetts Mutual. "Our government should take the lead, if necessary, in calling an international conference," says E. S. Cogswell of the State Insurance Department. "The United States

hould cooperate with other nations to make the change universal," writes A. C. Wash-urne of the Berkshire Life. "I prefer the 12-month plan for revising the calendar," tates L. H. Howe of the John Hancock Mutual. "Our government should take any ecessary action leading toward international adoption," declares H. A. Grout of Boston. "I think the United States should take steps to accomplish this reform," urges E. T. Berkeley of the Employers Group. "I favor the equal-quarter plan," says Eleanor A. Abbott of John Hancock. "I think the United States should take any necessary action," writes H. A. Garabedian of Boston. "There must be concurrent international action in this matter," advises Elizabeth W. Wilson of Cambridge. "The U. S. should take legislative action contingent upon acceptance by other powers," says C. E. Hodges, Jr., of the American Policyholders.

Michigan. "Our present calendar should be changed, as soon as practically possible," urges Prof. James W. Glover of the University of Michigan. "World agreement would be preferable to independent action by the U. S.," suggests C. H. Burhans of Standard Accident. "We should seek to effect calendar reform by active cooperation with other nations," declares Kendrick Stoke of Michigan Liability. "The present calendar has served us well, but it can be improved and should be changed; I very definitely prefer the 12-month plan of revision; the United States government should take the initiative," writes J. E. Little of the Maccabees.

Minnesota. "Our government should take action to make the equal-quarter plan effective as soon as it is approved by the League of Nations," says H. W. Allstrom of the Minnesota Mutual. "Why defer this needed change to an equal-quarter calendar any longer?" asks E. H. Dearth of Saint Paul.

Missouri. "The United States should initiate definite action in some form," writes F. S. Withington of Kansas City. "Our government should cooperate with all international groups which are studying the matter," states C. E. Nelson of the State Insurance Department. "I favor the equal-quarter plan and think there should be definite legislative action," declares F. D. Strudell of Northwestern National. "The calendar should be changed," urges A. C. Good of Jefferson City.

Montana. "Our government should sponsor an international conference for this proposal," says F. E. Young of Helena.

Nebraska. "The 12-month revision is better than the 13-month plan, but in my opinion no change is necessary," writes J. C. Seitz of Omaha. "I believe the calendar should be changed," states E. C. Ames of Lincoln.

New Jersey. "The U. S. should take the lead in proposing this reform," suggests Conrad Orloff of the Prudential. "Our government should be represented at any international conference discussing this question," says J. S. Thompson of the Mutual Benefit Life. "The World Calendar is the best proposal for revising the calendar," writes John A. McKellar of Bergenfield. "Let's legalize calendar reform and urge other nations to follow suit," urges A. W. Tucker of Princeton. "The 12-month revision is better than the 13-month proposal," declares J. F. Little of the Prudential. "I favor definite legislative action," insists J. R. Herman of Ridgewood. "The 12-month equal-quarter is the best plan," says W. J. Drobnyik of Newark.

New York. "Absolutely yes, as to calendar reform; the present division of the year is archaic and a makeshift; the United States should lead the movement," writes E. C. DeKay of the Industrial Service Corporation. "The government should take steps toward adoption of the 12-month equal-quarter plan," states Lucile M. Albright of the Security Mutual. "There would be less opposition to the 12-month plan of revision than to the 13-month proposal; it is less radical and preserves the quarterly division of the year," comments Marian R. Albright of the Security Mutual. "I believe the United States should take definite action toward changing the calendar," urges Henry Farrer of the Insurance Company of North America. "For insurance I think the 12-month plan is better," says H. N. Sheppard of the Home Life.

"The government should cooperate in obtaining international action," says F. S. Perryman of Royal Indemnity. "There should be definite legislative action," writes H. J. Stark of the Metropolitan, as does also G. D. Moore of Standard Surety. "The insurance business, while favoring calendar reform, would be much opposed to a 13-

month calendar, owing to rate structures, existing contracts, etc.," comments Joseph Linder of Wolfe. "Congress should empower the President to act in this matter," urges W. G. Bowerman of the New York Life. "Our government should pass the necessary legislation and conduct negotiations with foreign nations to secure uniform action," suggests H. L. Feay of the State Insurance Department.

"There should be an international conference to further this reform," advises C. G. Smith of the State Insurance Fund. "There should be an informed exchange of opinions with other nations," suggests M. R. Hollenberg of the State Insurance Department. "The United States should participate in any international action to promote this plan," declares F. A. Weck of the Metropolitan Life. "The government might appoint a commission to draft a new calendar," says Robert Riegel of Buffalo.

"The government should favor the revised 12-month calendar," writes S. L. Otis of the Otis Service. "We should do whatever is necessary to put this reform into effect," states W. H. Bittel, insurance attorney. "The government should actively interest itself," suggests W. W. Mincks of the Equitable. "I favor the 12-month equal-quarter plan, if any," says W. J. November of the Equitable. "I favor not merely the equal-quarter revision of the calendar, but also a readjustment of holidays to fall always on week-ends, as the present breaking up of the week by holidays is extremely inefficient," declares W. F. Roeber of the National Council on Compensation Insurance.

"The government should take definite action on the 12-month equal-quarter plan, which is an excellent and stable idea," writes E. A. Cook of the Interboro Mutual. "It is the nearest practicable compromise between ideal and reality," states Kingsland Camp of the Equitable. "Congress should authorize the President to appoint a Commission with authority to act," suggests M. F. Lipton of the Equitable. "Some change in the calendar might be made with advantage," concedes J. B. St. John of the Metropolitan. "I favor the equal-quarter revision," declares L. S. Wagenseller of the Metropolitan. "The calendar should be changed," says Harry Walker of the Equitable. "If any change is made, I prefer the 12-month plan," writes D. S. Craig of the Metropolitan. "I favor legislative action for the 12-month plan," insists D. A. Walker of the Equitable, as does David Silverman of Brooklyn. "The government should cooperate with all other countries in this matter," urges L. J. Brazdionis of Brooklyn. "Calendar reform is desirable if the possibility of an undesirable change can be eliminated," says R. Henderson of the Equitable.

Ohio. "Our government should endorse The World Calendar and encourage concerted action by other nations," writes C. H. Folz of the Western-and-Southern. "I see nothing to be gained by postponing this reform any longer; the League of Nations is obviously the body through which unified international action should proceed," states E. E. Hardcastle of the Union Central. "I have favored action along these lines for many years; I prefer the 12-month," says F. A. Draper of Westerville.

Oregon. "More education of the public is required before legislative action is taken; the 13-month plan is too radical; the U. S. should cooperate with the League of Nations in a worldwide program," writes G. E. Cannon of the Oregon Mutual.

Pennsylvania. "The 13-month idea is utterly inacceptable," declares J. L. Milne of the Presbyterian Ministers Fund. "I favor the 12-month equal-quarter proposal," comments M. L. Johnson of the Penn Mutual. "Adoption of the 13-month plan would be most unfortunate," states M. A. Linton of Philadelphia. "I favor legislative action looking toward the equal-quarter plan," says E. W. Marshall of Provident Mutual.

South Carolina. "I favor the equal-quarter plan but haven't considered what action our government ought to take," writes J. M. Woolery of the Southeastern Life.

Tennessee. "If the United States and Great Britain could reach an agreement, a reform of this kind might be instituted; I certainly am in favor of changing to the equal-quarter perpetual calendar," states K. B. Piper of Provident Life and Accident. "Our government should act on this matter, in concert with other major powers," suggests W. H. McBride of the National Life and Accident.

Texas. "The 13-month plan would be specially difficult," says L. K. Friedman of the Great Southern.

Virginia. "I prefer the equal-quarter plan," states C. A. Taylor of the Virginia

Life, and his opinion is endorsed by C. A. McConaghy of the Shenandoah Insurance Co.

Wisconsin. "Legislative action for the equal-quarter plan should be taken so that the new calendar can go into effect in 1939; the difficulty with a 13-month year is that 13 is a prime number and does not lend itself to division; international cooperation might be obtained quickly if the U. S. government were to adopt The World Calendar," argues V. E. Henningsen of the Northwestern Mutual. "The U. S. should cooperate in any organized international movement toward calendar reform," says Elizabeth J. Steele of Madison. "The 12-month plan is best," says C. E. Brooks of Madison, as does also C. N. Jacobs of the Hardware Mutual. "If any change is made, I would prefer the equal-quarter," writes A. C. Eastlack of Wisconsin National.

Washington. "I'm not certain about calendar reform, but prefer the equal-quarter plan," states R. C. Burton of the New World Life.

STATISTICIANS AGAIN FAVOR WORLD CALENDAR

AT the annual meeting of the American Statistical Association in Chicago, December 26-29, 1934, its calendar reform committee made a detailed report on the result of questionnaires submitted to the membership. Two questionnaires were sent out, the first a general one, the second a more detailed inquiry submitted only to those members who had expressed a special interest in the subject.

The results of both questionnaires are presented fully in the Journal of the Association. The committee's summary is as follows:

1. Judging by the fact that the first questionnaire was answered by 21 per cent of the Association's membership, only a minority of the members of the Association are sufficiently interested in or aware of the problems offered by the present calendar. But among this minority are most of the prominent members of the profession.

2. Of the minority of the membership who were sufficiently interested in calendar reform to answer the first questionnaire, the overwhelming majority was favorably inclined to calendar reform and was willing to urge a reform of the calendar within the near future.

3. In some fields of interest there was, however, a negative attitude to a change in calendar. This was true of such fields as insurance, and was shown by those members of the Association who are interested primarily in the theory of statistics.

4. Judging by the second questionnaire, only about 10 per cent of the Association's membership are sufficiently conversant with, and interested in, the calendar problem to pass detailed judgment upon its various aspects. However, the replies of this small minority throw considerable light upon various questions connected with the change of the calendar.

5. From the viewpoints of the field of special interest and/or of statistical practice as a whole, the gravest disadvantages of the present calendar are the unequal number of days in the months and the fact that in successive years one and the same month has a varying number of different days of the week. Accordingly, from the same viewpoints, the gravest disadvantage of any change in the calendar is the changing length of the months from the old to the new calendar. But from the viewpoint of society as a whole, the most important defect of the present calendar is the shift in holidays from year to year, and other shifts of dates; while the greatest disadvantage of a change in the calendar is the disappearance in the new calendar of certain dates existing in the old calendar.

6. The replies in the second questionnaire are overwhelmingly in favor of a reform of the present calendar. As between the two leading plans of reform, the 12 months equal-quarter plan, and the 13 equal months plan, the former is slightly favored over the latter in replies given from the viewpoints of special field of interest and/or statistical practice as a whole. From the viewpoint of society as a whole, there is a marked preponderance in favor of the 12 months equal-quarter plan, 92 out of 147 replies giving a definite choice favoring this plan.

ROMANCE OF THE CALENDAR

By P. W. Wilson

CHAPTER I: A SYMPOSIUM ON TIME

WE are to tell the story of a convenience to the individual and society. It is a convenience so familiar that, as a rule, it is taken for granted. The story of the calendar is a long story. The opening chapter has to be read in the dim light of the dawn of time. Yet the story is as modern as it is ancient. The calendar is the one activity in civilization that can never be out of date.

The story leads us into remote periods and strange places—as remote as Iceland, Korea and Tibet. We see man in his most primitive dwellings. We visit tombs and temples, churches, colleges and the courts of kings. Yet we do not forget the bank, the factory, the railway and the steamship. The story is crowded with curious incident and human drama. It includes entertaining arithmetic—none of it beyond the comprehension of a person who knows the elements of arithmetic—nor has anyone interested himself in the calendar and afterwards lost that interest. Like the language of the rocks and of the flowers and of the birds, the language of time, once heard, can never again be foreign. It becomes a personal companionship.

Owing to exceptional circumstances, men have been cut off suddenly, and as it seemed finally, from their fellowmen. They were condemned to solitude. Is it not significant that these exiles in their loneliness desired, above all things, to maintain some kind of device for counting their days?

When Robinson Crusoe landed on his desert island what was his first haunting fear? It was that he would lose his "reckoning of time for want of books and pen and ink and should even forget the Sabbath days." He lost not a moment before setting up a post and cutting a notch upon it each day as it dawned and he writes: "Every seventh notch was as long again as the rest, and every first day of the month, as long again as that long one; and thus I kept my calendar, or weekly, monthly, and yearly reckoning."

The original of Robinson Crusoe was Alexander Selkirk; it was to his memory that Cowper inscribed the poem which begins: "I am monarch of all I survey," and there we read of the "valleys and rocks" which never heard "the sound of the church-going bell." The monarch of all he surveyed needed a calendar that would acquaint him with the Sabbath.

Dumas tells of Edmund Dantes—otherwise Count of Monte Cristo, who was incarcerated in the fortress of Chateau d'If—how he managed by means of a tunnel to visit the Abbe Faria, who had been for years in solitary confinement. The Abbe astonished Monte Cristo with the informa-

tion that it was just 12:15 o'clock, and how did he know it? He had inscribed ellipses on one of the walls and watched the shadow cast by his window as it moved across the masonry. Here was a lonely man whose instinct it was to measure time.

As with man in solitude, so with man in society. Not for an instant has he ceased through thousands of years—as Shakespeare reminds us—whatever the wars, whatever the revolutions—to

> See the minutes how they run,
> How many make the hour full complete;
> How many hours bring about the day;
> How many days will finish up the year;
> How many years a mortal man may live.

It is said that good writers use short words. The sound of single syllables—thought, force, life—is familiar to our ears, and we take it for granted that we know what they mean. These are the words that—as we put it—any child can understand.

When we try to define the words we realize something of their content. "What is truth?" asked Pilate, and after nineteen hundred years of speculation by the greatest intellects of our race, who has answered that ironical question? The profoundest philosophers—Kant and his successors—brood over the problem and cannot say for certain how much of reality, if anything, is really real.

In considering the calendar, the question that confronts us at the outset—not that we shall attempt to answer it—must be: "What is time?" And of the "great mystery," as Carlyle calls it, there are many definitions. In one dictionary, time is stated to be "the general idea, relation or fact of continuous or successive existence." Another formula is "the experience of duration." A third is "that dimension of the world which we express in terms of before and after."

These definitions of time consist of words about a word, and examined carefully, they only multiply our uncertainties. What do we mean by "continuous or successive existence?" What is "experience" and what is "duration" and what is "dimension" and what are "before and after?"

We say that the tick of a watch tells the time. But is time really so simple as that little snapshot of "duration?" There are vagaries associated with time that have become familiar to us all, and one of them is what we call speed. We watch an express train as—with its whistle—it whizzes through a station. The note of the whistle as the train approaches is sharp and shrill. But as the train recedes, the note falls flat. The speed of the train, as it passes by, adds to and detracts from the vibrations of sound that, in a given time, reach the ear.

During the war, millions of people experienced a somewhat similar impression. A projectile was hurled through the air at a speed that out-

stripped the passage of sound—that is, 1090 feet per second. The noise of the shell thus reached the ear, as it were, backwards. First, there was the explosion of the shell near at hand. Next, the ear was conscious of the shriek of the shell along its course. Thirdly, there was audible in the distance the boom of the gun that fired the shell.

Vision is determined by rays of light that reach the eye, and light, like sound, requires time—a second per 186,772 miles—to pass from one point to another. There are stars which are so distant from our Earth that their inhabitants, if they were inhabited and had the required telescope would be today watching the Battle of Yorktown or Waterloo. The origin of the twinkle from those stars that we on our side observe at this moment is more than 100 years old nor are we at any instant seeing those stars in the place where they really are. During the transit of the light that reaches us, the stars have moved on. Many stars are literally thousands of "light years" distant from the Earth.

It is with incredible velocity that stars which we call "fixed" sweep along orbits of illimitable range. A spectator on such a star would thus see our history only as the rays from our earth reached him. Moving toward the earth, he would notice an acceleration of events; moving away from the earth, there would be a retardation of events; and if the motion away from the earth were so rapid as to exceed the speed of light, the rays from our earth would be, as it were, outstripped by the hurry of the star and would not reach the spectator. The earth would be simply invisible.

Time is thus a thought in the mind of man, and a very elusive thought. Over that thought, at the moment, the supermen of science, Einstein and Bergson, protagonists in the field of relativity, with their disciples, meditate and argue—A French scientist, Charles Nordmann, has written a whole book on their controversy, entitled "The Tyranny of Time—Einstein or Bergson"—and there are not many of us qualified to share their mathematical solitudes. But the discussion is evidence that what seems to be so simple that it can be told by the tick of a watch, is really a subtlety as bewildering to the reason as it is fascinating to the imagination.

What Einstein elucidates—if elucidation is the right word—is the relativity of time to the motion of material bodies. The problem that the average man has had to solve is the much more complex relativity of time to the emotions of his own being. Feelings and circumstances affect powers of reckoning, and when man tries to be a clock, he keeps very poor time. The beat of his heart is always fast or slow. Any lawyer will confirm the statement that evidence of witnesses as to whether they waited for five or ten or fifteen minutes, even if it be given in good faith, is unreliable. What is five minutes to one person is ten minutes to another.

"How slowly the hours pass to the unhappy," wrote the French writer, Saurin, and of an eager suitor, Shakespeare tells us, "time goes on

crutches till love have its rites." We may be anxiously expecting news. The clock seems to stop. "What minutes!" wrote Disraeli of such a crisis. "Count them by sensation, and not by calendars; each moment is a day."

Yet time seems also to fly apace. "Pleasure and action make the hours seem short," says Shakespeare, and in retrospect even a laggard time seems to have been rushing breathlessly ahead. "A thousand years," says the Psalmist, "are but as yesterday when it is passed."

To the humblest and the proudest of creatures alike, the passage of time makes a difference. In the words of Ovid, time is "the best medicine." It heals the wound. Yet none the less is it a fact that—once more to quote Shakespeare—"the whirligig of time brings in his revenges." Some, in their eagerness, "seize time by the forelock," an idea to which ancient writers were very partial. Carpe Diem—catch the day—cried Horace. Yet there are others who, in the words of Rabelais, want to know "how a man should kill time." Wordsworth speaks of time as "a galling yoke," and in prison doing time is a punishment.

Man has endeavored to visualize Father Time. Artists have painted his portrait on walls and canvas. Sculptors have carved his countenance on stone. To the Greeks, time was an august personage whose heyday of youth was enjoyed in the dim primeval eras—to quote Chesterton—"before the gods that made the gods had seen their sunrise pass." Time survives as Kronos, an old man, bowed and bearded, whose golden age has receded long ago into the remote shadows. Nor was Kronos always treated with the respect that his age deserved. Athens was a city of the immediate, where—according to Scripture—they "spent their time in nothing else but either to tell or to hear some new thing" and Kronos came to be ridiculed as the Great Has Been—a dotard on days gone by.

Let no one, however, minimize the formidable prerogatives that old Kronos never surrenders. In the heavens above our heads shines the orb of his unending authority. His especial planet is Saturn and Saturn was the Latin *incognito* that Kronos used when, as a deity on tour, he left the Olympus of Homer and paid a state visit to the more youthful city of Rome. From his celestial sphere, wheeling through solar space, Kronos drew the fascinating science that, in its innumerable ramifications, we call chronology. It is a science that is illuminated by sun, moon and stars; and the alphabet of chronology is the calendar.

In prose and poetry, the age-long sovereignty of time over the affairs of men has been surrounded by the regalia of an impressive symbolism. "Time's the King of men," wrote Shakespeare, "he's both their parent and he is their grave." The staff in the gnarled hand of Kronos was not only a support. It was a scythe and ceaselessly that scythe swishes—day and night—over the societies of all living things. In the greatest of his hymns, Isaac Watts tells how "time like an ever rolling stream bears all

her sons away," and Tennyson, in a crude concrete couplet, declares: "Every moment dies a man, every moment one is born."

No wonder that with his own somber eloquence Omar Khayyam could sing the swan song of us mortals: "We are no other than a moving row of magic shadows, shapes that come and go," which is, perhaps, the earliest —if also an inadvertent—allusion to what we know as the silver screen!

As with lives so with events. "Rich with the spoils of time," that is the glory of knowledge. Kronos reaps the harvest of history and gathers the archives of all that man has attempted and achieved into the great garner of destiny. The card catalog of history is the calendar, and if the calendar were to be withdrawn from the muniment room of civilization history would fall apart into a hopeless confusion of unrelated fragments. Thousands of scholars are today endeavoring to fit events and edifices and manuscripts into that place in the calendar which once they occupied.

The employment of time by man determines the failure or success of his pursuit of happiness. "Time wasted," wrote Young, "is existence—(time) used is life," and Sir John Suckling coined a phrase which today is on every lip. He talked of acting in the "nick of time." In peace, in war, this is the strategy that wins. On the one hand delay—here the tag comes from Erasmus—is dangerous. On the other hand, Erasmus advises us, "leave hurry to slaves." Without haste, without rest—that was Goethe's way of making the most of time.

The busiest people, it is said, have always time to spare. They know how to conserve their time. On the other hand—once more we quote Young—"procrastination is the thief of time," and Lord Chesterfield wrote to his son, "I recommend you to take care of the minutes, for the hours will take care of themselves." As Oliver Wendell Holmes, in his whimsical way, once rhymed these preachments:

> Old Time, in whose banks we deposit our notes,
> Is a miser who always wants guineas for groats:
> He keeps all his customers still in arrears
> By lending them minutes and charging them years.

There is one passage in literature which has been, for thousands of years, a philosophy of time. "To every thing there is a season," we read in Ecclesiastes, "and a time to every purpose under the heaven." There is "a time to be born and a time to die—a time to plant and a time to pluck up that which is planted," and so on through all the activities and impulses that are included in life. Time is never inadequate if time be orderly.

As we contemplate time—its never ceasing flow through unnumbered millennia—we are drawn into the fathomless depths of eternity. Time is none other than the shadow of nature herself, and between these inseparables there never fails to be an unmistakable correspondence. Loyal to nature, Time displays an unalterable antipathy to all that implies waste,

futility, negation. Neither Time nor Nature is ever a Nihilist. Neither obliterates something into nothing. Both abhor a vacuum.

Time certainly destroys. At the touch of old Kronos, the crests of the mountains crumble into rocks and the rocks disintegrate into soil. But destruction only begins a process. The soil, as it accumulates, is crushed by its weight. It is welded again into rocks and forms vast precipices whereon the craftsmanship of time can be measured by strata which determine a chronology that may extend over millions of years.

On masonry laid by man, however massive it be, the touch of time leaves, similarly, the fingerprint of decay. The treasures of the proudest empires, gorgeous in color and gleaming with adornment, are mellowed into a venerable old age, and afterwards they moulder slowly but surely into inevitable dust. What are our museums but brief havens where, as we fondly suppose, a few trifles collected as souvenirs in the cave and the jungle, in the attics and cellars of civilization, are withdrawn for a while from the decomposing tyranny of time? And how long do we think that museums and libraries will withstand that pervading atmosphere which envelopes and subdues the universe itself?

Yet, here again, time only destroys in order that time may create. If the good be obliterated, the better is substituted for it—at least, so we hope—and the better yields to the best that is yet to be.

Time has been envisaged as the busiest and most skilful of all artificers. His "factory is a secret place," wrote Dickens—his "work is noiseless"—his "hands are mutes." Time is the patience of God.

Under the winking lens of the slow moving camera, a blossom gradually and graciously unfolds its glories. We are conscious of the awe with which He Who is Lord of Time—the Same Yesterday Today and Forever—told us to consider the lilies of the field how they grow.

It is with such infinite care that, over a period of thousands of years, the calendar has been developed. The measurement of time, its division into suitable periods, the enumeration and identification and adjustment of those periods, has been regarded as a sacred task. The calendar has been formed, only to be reformed.

At suitable intervals, some change is made—the most trifling change is important when it affects the calendar—which improves this exquisitely logical and arithmetically graceful structure of seconds and minutes and hours, of days and months and years. It is to this evolution of the calendar that it is our turn—some would put it, our privilege—to add here and there a perfecting touch. There are anomalies that may be corrected. Let us examine those anomalies, never forgetting the reverence which is due to a structure thus venerable and intimate with the life of the race.

(To Be Continued)

EXCERPTS AND REVIEWS

Simpler and Clearer

By CLAIR C. BARNES, C.P.A.

California State Department of Finance

(*Address Before Sacramento Statistical Association*)

ONE of the principal purposes of any inquiry by statisticians is to determine whether a revised calendar will be a reformed calendar or a still further deformed calendar. Of course there is a wide difference of opinion even among thoughtful students of the subject as to what type of change will best serve the world.

Considering the effects of calendar revision on statistical methods, the principal object of changing the calendar is to make time intervals more uniform and comparable. Any plan worth considering will simplify methods of making statistical comparisons based on data pertaining to all time subsequent to the change. Each week and month will be comparable with the same week or month in any other revised-calendar year, because of the introduction of a year-day every year and a leap-day every leap year, which will make each year begin on Sunday.

For a considerable number of years after the proposed reform, statistical data compiled prior to calendar revision will have to be adjusted to make them comparable with data collected under the new plan. In this respect statistical methods will be complicated until old records have been re-arranged on the new basis. But since statistics are so important to our scientific and economic advancement, the labor involved will be well worth while, in its effect of giving greater accuracy and simplicity for all time to come. In fact, all the efforts now made by statisticians to adjust weekly and monthly data regarding production, consumption, prices, health, weather, etc., really constitute calendar revision, although the method used is temporary and confusing. It will be wiser to correct the calendar itself, rather than to continue to depend on involved statistical methods to bring our time data into shape for accurate comparison.

One important effect of calendar revision on the science of statistics will be the development of simpler and clearer ways of presenting comparisons based on time units, because the facts will no longer be obscured by intricate adjustments.

Our Changing World

By H. G. WELLS

Member World Calendar Association

EDITOR'S NOTE.—*Perhaps the most compelling reason for the increasing interest in calendar reform throughout the world is the closer contact, physical and mental, which has been thrust upon mankind and upon nations by the invention of the radio, the airplane and other scientific devices for intercommunication. Mr. Wells, in a recent article in Collier's Weekly, pictures this situation and the many far-flung problems that arise from it.*

THE cardinal fact in human history during the past thirty centuries has been the irregularly accelerated change in the scope, pace and precision of communications. Everything is subordinated to that.

About this cardinal fact all the other broad realities group themselves as a system of fluctuating adjustments. It has determined the expansion and collapse of states and empires, the position and growth of cities, the diastole and systole of population and the character of man's outlook upon the universe. Even climatic change takes a role secondary to this main theme in the human story.

Realization of this cardinal biological truth is gradually replacing the erudite balderdash of the literary historian, with his fantasies of the births and deaths of civilizations. There has been and there is only one human civilization and it has manifestly been spreading and varying and wandering and drawing itself together again into larger, fewer units of law and organization since the beginning.

In the past century the rate of this change of scale has become relatively terrific. Communication has become so swift, so far-reaching, universal and intimate that a community of destiny is dictated inexorably to mankind, either the unity of a common purpose or the unity of a common debacle and biological degeneration.

Mankind has still to achieve any world-

wide mental unity. We are unprepared for this emergency that has been gathering through the centuries, to rush at last so swiftly upon us. The natural partitions are down, the whole world is open to us, but we have great difficulty in realizing that. Power—gigantic power—has come to us. Plenty overwhelms us. We can mount to the zenith or plumb the deepest seas; in a few score hours we can fly to the uttermost parts of the earth. Invention and scientific knowledge have taken our hearts and imaginations by surprise. Our social and political ideas, our morals, our ambitions, our courage have had as yet no corresponding expansion.

The whole present spectacle of mankind, broadly conceived, is the uneasy and mainly unintelligent response to the stresses. It never anticipated the fusions and long-range intimacies that now dismay it.

Few of us as yet apprehend the reality of our situation, and none of us can claim to know with any completeness or lucidity the methods by which our race may be able to adapt itself to the vast and fundamental changes that are going on. Man today is a challenged animal. He has to respond, he has to respond successfully to the challenge. But we still lack the force of mind and will to essay the gigantic clearances and the gigantic new constructions upon which these omnipotent changes in our conditions insist.

On the Threshold

By Erland Echlin

(From a pamphlet published by the Rational Calendar Association of Canada)

FOUR years from now, January 1, 1939, will not improbably see the adoption by the world of a simplified calendar. For the past century the growing agitation on the part of science, commerce and the church for a rational improvement in the division of the year, together with a fixed Easter, has developed until it is now at the threshold of legislation.

In twenty of the world's leading nations, calendar committees and organizations are busy informing their public of the advantages of a moderate reform. In 1923, the League of Nations designated a commission to study and report on the subject. As far back as 1928 Britain's Parliament passed an Act stabilizing Easter, and only an Order in Council is required to bring it into force.

In 1934 opinions from wide cross-sections of several countries showed everywhere that a substantial majority favored simplification of the calendar. Commercial bodies, boards of trade and Chambers of Commerce endorsed it in principle. Three great groups of Christian churches passed resolutions favoring it.

In a world torn by war fears and political dissensions these relatively unsensational events have passed without marked notice. Some feel that "now is not the time" for calendar reform. But far more believe that as an economic stabilizer and a promoter of international agreement, this is the psychological moment for balancing the year and simplifying the calendar.

Latin American Leadership

(From an article in the *Prensa*, Santiago)

UNUSUAL distinction has been conferred upon a Chilean astronomer, Dr. Ismael Gajardo Reyes, who has been appointed a member of the International Advisory Board of The World Calendar Association, to advise the Association on all matters of calendar reform in relation to all Latin American countries. Other members of this commission include Prof. P. Stroobant, famous Belgian astronomer; Dr. Abraham Frowein of Berlin, former president of the International Chamber of Commerce; Dr. Athanase Politis, Greek diplomat and head of many important activities at the League of Nations; Prof. Amedeo Giannini, counsellor of the Italian Foreign Office.

Dr. Gajardo has undertaken to constitute permanent committees on calendar reform in each of the countries of Latin America. These committees will contact with the League of Nations and with all the other national calendar reform committees in Europe and America.

We are informed that the Minister of Foreign Relations, Mr. Miguel Cruchaga Tocornal, has given his valuable official support to the calendar reform proposals worked out by Dr. Gajardo, and has instructed the Chilean delegation at Geneva to assist in the carrying out of these proposals at the League of Nations.

EDITORIAL PARAGRAPHS

Progress in calendar reform is reported. People to whom the present calendar is daily routine may have difficulty in realizing the strength of the movement.—Rochester *Democrat Chronicle.*

Increasing demand of business concerns has led various governments to study seriously the plans for calendar reform.—Greenwood (Miss.) *Commonwealth.*

Through The World Calendar Association the movement has become widespread. —Utica *Observer Dispatch.*

Shifting date of Easter offers no particular difficulty. Most of the major creeds already approve a fixed date.—Baltimore *Sun.*

There are many reasons, business and social, to commend the new plan.—Floral Park (N. Y.) *Gateway.*

Constant additions are being made to the ranks of supporters of calendar reform in the United States.—Amsterdam (N. Y.) *Recorder.*

Calendar reform is a matter essentially international in scope, and the League of Nations is obviously the body through which unified action should proceed.—Brockton (Mass.) *Enterprise.*

General opinion is distinctly favorable to The World Calendar plan.—Olean (N. Y.) *Times.*

The world has been changing so fast during the last 25 years that no calendar 2,000 years old can keep abreast of the times.—Lead (S. D.) *Call.*

It would be distinctly to the disadvantage of business in general to have a 13-month year.—Providence *Journal.*

When the calendar is changed, it will be the result of widespread demands from agencies in charge of economic planning. —Cincinnati *Enquirer.*

Business interests are now being forced to realize that our present calendar is a very poor barometer to go by.—New Haven (Conn.) *Register.*

Against a 13-month calendar there are numerous objections. — St. Louis *Globe Democrat.*

There is a growing sentiment for a better ordered calendar.—Buffalo *News.*

After 1939 we may have no need to change our calendars on the first day of the year.—Los Angeles *Saturday Night.*

The 13-month proposal is so full of drawbacks that it will hardly meet general approval.—St. Louis *Star.*

There is likelihood of general agreement on a reformed 12-month calendar.—Morristown (Tenn.) *Gazette Mail.*

Calendar reform will eventually gain popularity until it is enacted.—Asbury Park *Press.*

You simply cannot maintain any exact comparisons under the present calendar. —New York *Journal of Commerce.*

Men in all walks of life are interested in reforming the calendar.—Sausalito (Cal.) *News.*

We must reject the year of 13 months as dangerous and indeed impossible.—Arkansas *Methodist.*

Opinion is overwhelmingly in favor of the 12-month plan.—University of Toronto *Monthly.*

The World Calendar is approved by practically everybody who examines it.—Toronto *Pathfinder.*

It is both desirable and feasible to introduce a perpetual 12-month calendar—Nottingham (England) *Guardian.*

Hardly a day passes in which we are not caused unnecessary trouble by the clumsiness of our comic calendar system. —London *Home and Empire.*

Progress is being made throughout the world toward revision of the present calendar.—Chicago *Marking Devices.*

It is generally conceded that the present calendar system is out of date.—Erie (Pa.) *Bulletin.*

Calendar reform is attracting increasing attention, and is well deserving of endorsement.—Milwaukee *Living Church.*

JOURNAL OF CALENDAR REFORM

EDITORS

CHARLES D. MORRIS CHARLES C. SUTTER

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ELISABETH ACHELIS, *President*

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EFFECTIVE leadership among business organizations on behalf of The World Calendar has been taken by the Chamber of Commerce of the State of New York. Among its members are to be found outstanding and influential leaders in the industrial, commercial and financial world in America.

It is significant that the action of the New York State Chamber was taken only after a year of exhaustive study by a special committee, composed of five men prominent in the American business world. It is significant also that their report, with resolutions, was placed in the hands of the members of the Chamber five days before the meeting, and was then formally adopted by a unanimous vote, with nearly 400 members present.

"It seems conclusively established," says this report, "that calendar reform is a matter of sufficient importance to warrant the great effort necessary to win for it general and world-wide approval."

There can be no doubt that the considered action of the New York Chamber will have a widespread influence. It has already been transmitted, in official communication, to the London Chamber of Commerce, and copies are also being sent to every other important Chamber throughout the world. Many of these bodies will doubtless take similar action, thereby registering a united sentiment on the part of business and commerce in favor of calendar revision.

In another part of this issue of the Journal is to be found a summary of the report recently issued by the American Statistical Association. This document gives strength and impetus to the continuous progress of calendar reform, reflecting as it does, a predominance of opinion among scientifically-minded business specialists, not only for a new calendar, but also for the type of revision advocated by The World Calendar Association.

FROM THE MAILBAG

This change is as desirable as it is inevitable.—Ray Stannard Baker, Amherst, Mass.

I am very much interested in this movement.—D. L. Helfferich, Vice-Pres., Gimbel Bros., Philadelphia.

Personally I heartily endorse The World Calendar. I find nothing in our church organization that will disfavor this forward movement. — Geo. McAhren, Clergyman, Circle, Mont.

Keep up the good work. Today I gave a talk on calendar reform at our Kiwanis Club.—Gerald Giving, Madison, S. D.

Easter ought to be always at the same time each year.—J. Sigfrid Edstrom, Pres., Swedish Gen. Elec. Co.

I have found much material offered in the Journal useful in my presentation of calendar reform.—F. C. Levin, State Teachers' College, Fredericksburg, Va.

Following with interest the development of The World Calendar, I anticipate its adoption in the very near future. —Rev. R. L. Brohawn, Baltimore.

Your proposals for calendar reform appeal to me as reasonable and rational. Their acceptance and adoption will follow the efforts you are making.—F. S. Holmes, Agri. Exp. Sta., College Park, Md.

From an accounting standpoint, a 12-month year by all means.—H. L. Sawyers, Accountant, Las Cruces, N. M.

Am in hearty agreement with The World Calendar and hope the change can be made soon.—H. L. Bates, Dean Emeritus, Pacific University, Forest Grove, Ore.

I do believe that the adoption of the most suited reform calendar would be denoting a signal progress and be helpful in very many ways.—C. J. Schaer, Manager, Chase Natl. Bank, Puerto Rico.

I wish to inform you that I will gladly give my attention to this interesting matter of calendar reform.—Leopoldo Eijo Garay, Bishop of Madrid-Alcala, Madrid.

Hope The World Calendar may be adopted at the next most convenient time. —R. W. Boreman, Carn. Tech., Pittsburgh.

Prefer 12-month equal-quarter calendar and think the United States Government should legislate to sponsor this calendar. —G. E. Parr, Boston.

I approve of the 12-month World Calendar, not the 13 per year. Why incur needless opposition?—L. L. Putnam, Accountant, Chicago.

Modern agitation for calendar reform has resulted chiefly from economic and social needs. There can be no doubt that a more efficient arrangement of the calendar would be a benefit. — Dr. Hans Platzer, Director-General German Statistical Office, Berlin.

The World Calendar is a much better method of counting time than the proposed 13-month one. I am in favor of it.—W. P. Sears, Jr., Lecturer, N. Y. Univ., New York.

Your Journal is both interesting and informative.—H. H. Bronson, Lawyer, Grand Forks, N. D.

The 12-month plan, while instituting the needed social reforms and meeting the problem of farm life in relation to church work, will not encumber research and factual comparison with previous years nor the study of history.—R. Goodfellow, Congregational-Christian Church, Britton, Mich.

We are very much interested in calendar reform and are 100 per cent for the 12-month calendar.—R. Pinder, Lumberman, Effingham, Kan.

The Journal can not be improved. It presents the matter so clearly and free from bias or faddism.—Bishop George W. Plummer, N. Y.

Your World Calendar is a most sensible reform and is certainly worthy of much more public consideration.—P. E. Heckel, Cincinnati Bickford Tool Co.

The World Calendar meets with my hearty approval.—Dr. W. Campbell, Surgeon, Valley City, N. D.

I am much interested in the new 12-month calendar.—G. Winchester, Prof. of Physics, Rutgers Univ., N. J.

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Membership is based on an active interest in the study of an adequate and effective improvement of the calendar. Owing to lack of space, a large number of names have been omitted. They will be printed in future issues.

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CHRONOLOGY OF CALENDARS

0 B.C.—Dawn of Egyptian civilization, with first traces of f primitive calendar.
0 to 4550 B.C.—Pyramids of Ghizeh used by Egyptian priest- nomers for determining exact length of solar year.
1 B.C.—The modern 12-month calendar, direct ancestor of resent system, is introduced in Egypt.
4 B.C.—The date of Creation as assumed by the chronology shop Usher of England.
1 B.C.—Date of Creation as assumed by the Jewish calendar.
2 B.C.—Beginning of time, according to Indian chronologist.
7 B.C.—Beginning of time according to the Chinese.
0 B.C.—Babylonian calendar became fixed; it was a lunar dar of 12 months with one month repeated when necessary.
ca 1800 B.C.—Seven-day week becomes a fixture in Asia Minor.
3 B.C.—Beginning of the era of the Olympiads.
3 B.C.—Roman era begins. This is the year "of the founding e city," from which Roman chronology was reckoned.
) B.C.—Greek scientists and philosophers devote their atten- to calendrical science, but fail to establish any unified system g the Greek city-states. Most of them use a lunar 12-month ndar of 354 days.
9 B.C.—Rome shifts from a year of 10 months and 304 days to ar of 12 months and 354 days (with a biennial intercalation of ays).
2 B.C.—Meton, Greek scientist, discovers that 19 solar years ain 235 lunations. The Metonic cycle enables a definite adjust- t between solar and lunar years.
5 B.C.—Roman law calendar, previously a secret possession of priesthood, is made public property by Cnelus Flavius.
B.C.—Julius Caesar adopted revision of old Roman calendar.
B.C.—"Year of Confusion," a 445-day year marking the tran- n to the new Julian calendar.
5 B.C.—New calendar put into active use.
B.C.—Augustus Caesar muddles up the Julian calendar, revis- the leap-year arrangement, and changing the length of the ths in order to give 31 days to the new-named month of August.
2 A.D.—Constantine abolishes the Olympiads and establishes heir stead the Indictions, cycles of 15 years.
25—Council of Nicea is held at Nice to establish definite rules observance of Easter and other church feasts. Use of the 7-day k becomes general throughout the Roman Empire, gradually sup- ting the old division of the month into Ides, Nones and Kalends.
58—Rabbi Hillel II makes an adjustment of Jewish calendar.
32—Numbering of years as "from the birth of Christ" begins replace other chronological systems. The inventor of the new em was a monk, Dionysius Exiguus.
16—Christian era introduced into England.
79—King Charles III of Germany is the first to add "in the r of our Lord" to the date of his reign.
074—Omar Khayyam, poet and scientist, reforms Persian cal- ar.
563—Council of Trent urges Pope to take up calendar reform.
577—Pope Gregory XIII starts study of calendar reform pro- als.
582—Gregorian calendar adopted by Italy, Spain, Portugal, nce.
588—Gregorian calendar adopted by Switzerland and Holland.
609—Gregorian calendar adopted by Protestant Germany.
751—Gregorian calendar approved by the British Parliament.
752—Gregorian calendar adopted by England and America. This luded a change in the New Year's day from March 25 to Janu- 1.
793—French Revolutionary calendar introduced, with "decades" 10 days each supplanting the 7-day weeks.
804—French revolutionary calendar abandoned.
834—Abbe Mastrofini suggests to Vatican a perpetual calendar ing a "stabilizing" day.
849—Auguste Comte proposes calendar of thirteen 28-day nths.
873—Japan adopts Gregorian calendar.
887—Astronomical Society of France, after a 3-year study, ommends perpetual calendar of 12-month equal-quarter type, jecting as impractical all 13-month plans.
900—Non-Roman churches, at Evangelical conference in Eisen- h, take up proposals for calendar reform.
908—Bill for reform introduced in Parliament.
910—Congress of European Chambers of Commerce adopts resolu- n for calendar reform. Similar action was taken in 1912 and 1914.
912—China adopts Gregorian calendar.
913—International Association of Academies considers calendar form.—Switzerland starts preparations for international conven- n.
914—International Chamber of Commerce begins promotion of lendar reform, continued at meetings of 1921, 1923 and 1925.—Bill for calendar reform introduced in British Parliament.—Commercial organizations meeting in Liege and Paris urge revision.
1917—Organization of American business men formed to promote calendar reform.—Turkey adopts Gregorian calendar.
1918—Bolshevist Russia adopts Gregorian calendar.—Eastern Orthodox Church starts movement to discard Julian reckoning.—Bill for calendar reform introduced into U. S. Congress.
1919—International Astronomical Union studies calendar reform.
1920—Revised calendar urged by Lord Desborough in Parliament.
1921—British House of Lords considers proposals for a fixed Easter.—International conference on calendar is urged by International Chamber of Commerce.—Bill for calendar reform introduced in U. S. Congress.
1922—Hearing on calendar reform in House of Representatives.—Congress of International Astronomical Union recommends perpetual 12-month equal-quarter calendar.
1923—Greece and Greek Church adopt Gregorian calendar.—League of Nations takes up calendar revision and appoints committee of inquiry.—International Chamber of Commerce urges stabilization of Easter.
1924—Vatican officially states to League of Nations that there are no dogmatic objections to calendar reform or Easter stabilization.—Assembly of Geodesic and Geophysical Union at Madrid considers proposals for a new calendar.—Bill for calendar reform introduced in the U. S. Congress.
1925—International Chamber of Commerce approves League of Nations activity for calendar reform.
1926—Assembly of League of Nations formally accepts report of its committee of inquiry into calendar reform.—International Commission of Marine Meteorology favors perpetual calendar of equal-quarter type.
1927—League of Nations invites all governments to study the subject of calendar revision and to appoint national committees.
1928—Pan-American Conference at Havana urges Latin-American states to participate in League of Nations' studies.—England legislates for a fixed Easter.—National Academy of Sciences in Washington favors calendar revision.—George Eastman of Rochester, founds an American committee for the promotion of the 13-month calendar.—Bills and resolutions in U. S. Senate and House, and formal hearings are held.
1929—Universal Christian Council (non-Roman churches), at Eisenach, adopts resolution urging churches to participate in movement for calendar reform.—Resolutions introduced in U. S. Congress requesting President to call international convention for consideration of calendar.
1930—The World Calendar Association organized in New York.
1931—International Conference on calendar reform at League of Nations, with 44 nations represented, adopts an act for the stabilization of Easter and recommends continued study of plans for general revision of the calendar.—Eastern Orthodox Church approves general revision of the calendar on 12-month equal-quarter basis.—Governments of Greece and Switzerland officially approve calendar reform on 12-month basis.
1932—National Calendar Association of England organized to promote equal-quarter calendar.—Twenty-six nations formally approve the Easter Act adopted by the League of Nations.—Universal Christian Council starts a formal study of calendar reform.—National Electric Light Association of New York completes an industrial study of calendar reform.
1933—International Chamber of Commerce votes for a study of trade problems in connection with calendar reform.—Universal Christian Council approves League proposals for Easter stabilization.—Bureau d'Etudes organized in Paris to study calendar revision.—President Hoover's Committee on Social Trends urges importance of calendar simplification.
1934—Latin-America organizes committees in six countries, and Chilean government officially endorses World Calendar.—International Parliamentary Union considers subject at Istanbul congress.—National Calendar Association of Canada organized.—Venezuela endorses World Calendar.—Turkey becomes first non-Christian country to take up calendar simplification.—President De Valera of Irish Free State opposes any revision based on 13 months.—Japan states willingness to consider 12-month revision.—Universal Christian Council at Fano approves calendar reform, urging member churches to interest their governments.—Protestant Episcopal Church approves World Calendar; Federal Council of Churches considers subject favorably at annual convention; governing bodies of American Lutherans, Presbyterians and Southern Methodists adopt resolutions.—American Statistical Association appoints committee of study.—Congress of Fraternal Insurance Societies, 9,000,000 members, endorses World Calendar.—Questionnaire of American clergy shows 12-month plan favored by 7 to 1 over 13-month plan.—United Press, in survey of American business opinion, finds calendar reform favored 8 to 1.

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CONTENTS

Mexican Official Report 113
Memorandum to Vatican 117
Dr. Frick and the Reich, by Erland Echlin 120
Pity the Poor Editor, by G. K. Dahl 124
Ancient Chinese Timekeeping, by Elizabeth Crump Enders 128
Dates, Law and Railways, by Edward F. Flynn 131
History of Our Calendar, by Prof. Arthur E. Kennelly 134
Obituary Notes 143
Royal Statistical Society 144
Toward a Common Objective, by Charles C. Sutter 145
Romance of the Calendar, II, by P. W. Wilson 149
Editorial Paragraphs 153
Excerpts and Reviews 154
Current Press Comment 156
Editorial: British Progress 157
From the Mailbag 158
List of New Members 159

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THE WORLD CALENDAR

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YEAR-END DAY, December Y, follows December 30th every year
LEAP-YEAR DAY, June L, follows June 30th in leap years

The World Calendar regulates the twelve-month year. It is balanced in structure, perpetual in form.

Its twelve months are multiples of halves and quarters. The equal quarters consist of 3 months; the first month has 31 days; the remaining two have 30 days. These quarters also comprise 13 weeks or 91 days, of which 13 days are Sundays and 78 are weekdays. Each month has 26 weekdays.

In the perpetual calendar, Year-End Day, the odd 365th and last day of the year, is considered as an extra Saturday between December 30th and January 1st. The additional 366th day in leap year is considered as another extra Saturday between June 30th and July 1st and is called Leap-Year Day. These days are tabulated as December Y and June L respectively, by which method the 31-day months begin the quarters. It is recommended that these two stabilizing days be considered by the United States as holidays. January 1st, New Year's Day, falls on Sunday, and the working week begins the following day.

The revised twelve-month year in its even quarters conforms to the seasons, recognizing natural laws. Comparisons are easily obtained; changes involved require a minimum of adjustment; expenses are not increased for business and the consumer; religious and secular holidays are stabilized, and the transition from the old to the new order is made easy by the retention of the twelve-month year.

"Our stability is but balance."—Robert Bridges.

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EDITORS
CHARLES D. MORRIS CHARLES C. SUTTER

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MEXICAN OFFICIAL REPORT

(Abstracted from the Spanish by E. H. Martinez)

In preparation for the quadrennial conference in Geneva next spring of the section of the League of Nations which deals with calendar reform, the Mexican government ordered an official study of the subject, in order to define the position which the Mexican delegates should maintain at that meeting. The report of this study has just been published, under the authority of the Federal Executive power, through the Secretary of Agriculture and Development. It is signed by Felipe N. de Parres, director of Meteorology; Manuel Medina, chief of the Geographical Institute, and Pastor Rouaix, director of Geography, Meteorology and Hydrology. The official government commission which advocated Mexican approval of calendar reform includes the Ministers of Education, Foreign Affairs and Economics.

IN APPROVING fully of calendar reform and of the plan generally known as The World Calendar, we submit that its acceptance will be of benefit to Mexico, and that it will enable this country to cooperate internationally in making the proposals for such a reform assume a universal character which is required to make them effective.

For Mexico the case for calendar reform may be summed up in the following points:

(1) It is a fact that the irregularities and abnormalities of the present calendar cause difficulties and inconveniences which make correction advisable.

(2) The proposed reform does not unduly disturb the present year,

merely rearranging the months within it so that abnormalities are reduced to a minimum.

(3) There are distinct and important advantages to the introduction of a special "Year Day" in all years and another extra day in leap years, reducing the nominal year to 364 days, in order to make the calendar perpetual and secure the ends desired.

(4) Division of these 364 days into 13 months is unnecessary, particularly as such a division prevents easy divisibility of the year into equal quarters and breaks the traditional and convenient 12-month system. The other proposed solution, known as The World Calendar, is less drastic and offers advantages equally effective.

(5) This plan, while retaining the 12-month division of the year, groups the months into cycles of 31, 30 and 30 days, obtaining in this way an absolute equality of the four quarters of the year with 91 days in each quarter, and also a relative equality of all the months, since all will contain 26 weekdays and the only difference lies in the fact that the first month of each quarter has an additional Sunday.

It should be noted that no study has been made by us of the religious phases of calendar reform, for the reason that in Mexico there exists an absolute separation of church and state. The religious side of the matter, however, has been taken into consideration by the League of Nations, which states that no insurmountable difficulties have been found in the way of the proposed reform.

Special Conditions in Mexico. In analyzing the various sectors of Mexican life and activity in connection with proposals for calendar reform, it is found that the multiple national factors which are involved can be grouped into two classes: First, those having a typical character of their own, created by Mexican methods and special practices which differentiate them completely from similar activities in other countries; and, second, those which are only simple adaptations to our ways, methods and procedures, of practices which are either universal or foreign in origin.

Chief among the first group is Mexican Agriculture, which, in spite of the efforts made to improve it and transform it, continues in general to use elementary and rudimentary methods. Alongside it, in the same grouping, are a number of small industries entirely typical, such as those dealing with ceramics, palm, wood fibre and stone.

Both in agriculture and in these small industries, it is customary to pay wages weekly. From the viewpoint of the payroll the proposal of the 13-month calendar would not be unsuitable, for this plan gives great predominance to the weekly unit. But it must be taken into consideration, also, that in farming the normal term of operations extends over a long period of the year, up to the harvest, and that balances and profits cannot

be computed or realized until the product has been marketed. Fom this viewpoint the importance of the week diminishes, and the quarterly or seasonal division of the year becomes more important. It must likewise be remembered that the closest of all calendar relationships join the farmer with the seasons of the year and with the time-periods used for commercial operations dealing with farm products. The same relationships apply also, with varying force, to the small Mexican industrialists.

Among the second group of elements in Mexico which are to be considered in this matter of calendar reform—those which are not typically national, and which embrace all national activities except those mentioned above, including even many which in the past have been national in character but have been weaned away from their typical Mexican individuality by the adoption of foreign procedures and methods—the viewpoint which must be taken toward them is that we must profit by the experience and opinion of other nations and seek to be cooperative with the outer world, just as we have done in adopting universal types of machinery, methods, systems and practices.

Owing to geographical, political and economic reasons, there is one nation which exercises a preponderant influence in Mexican life, namely, the United States. As far as calendar reform is concerned, it is advisable for us to make the utmost use of the studies, labor and promotional efforts which have been developed in this neighboring country, since in practice they are closely applicable to our general requirements.

In the United States, it is clear that opinion is well defined in favor of the proposal for a revised 12-month year, rather than for a year of 13 months. From Washington we learn that the scientific bureaus most closely related to time problems—namely, the Time Division of the Bureau of Standards, the Naval Observatory which issues the official nautical almanac, the Bureau of Marine Navigation, etc.—are openly adherents of the 12-month equal-quarter plan, and are opposed to the 13-month.

This official support for the so-called World Calendar is reinforced by a great volume of opinion from leaders of public opinion in the United States—legislators, bankers, merchants, farmers, educators, aviators and astronomers. The professional societies and groups which have studied calendar reform are also predominantly in favor of this proposal. We may sum up the opinion of these guides to American opinion as follows: *The World Calendar is the most practical, economical, simple, orderly and efficient method for remedying the defects of the old calendar. The plan for a 13-month year is violent, confusing, stupid, impractical and costly.*

Let us for a moment examine the arguments against a 13-month year. 1. Under this system it would be impossible to make an exact and convenient division of the year into quarters and halves, a division which has for generations proved essential to business and science. 2. The

transition to a 13-month year would be a protracted period of confusion and disarrangement, as, for example, in all statistical compilations and tabulations. 3. Comparison of present and past would become a matter of guesswork as a result of the variations between compared periods and the displacement of the seasonal divisions of the year. 4. There would be a definite and measurable increase in many items of cost and expense—such as in all monthly business operations, rent collections and payments, meter readings; in Mexico there would be an 8 per cent increase in charges for tax stamps and document costs. 5. Far-reaching legal adjustments would be required in contracts, leases, interest payments, etc.

The only advantage alleged in favor of the 13-month plan which does not exist to the same degree in the 12-month equal-quarter plan is that which makes each month exactly divisible into four weeks. But this emphasis on the week is completely offset by the fact that it sacrifices entirely the far-reaching convenience of dividing the year into four equal quarters, which is highly important in business, finance, government, education and social life.

Defenders of the 13-month plan have attached an exaggerated importance to the fact that a number of American business firms have adopted a 4-week period of internal business accounting. It can easily be demonstrated that any organization interested in maintaining such a 4-week period can do it perfectly within the structure of the 12-month equal-quarter year, gaining every advantage that would come from the rather extravagant effort to impose this same period on all the rest of the business world. (It should be noted that only about 500 of the 2,000,000 business organizations in the United States have indicated any preference for the 4-week accounting system.)

The most conclusive argument against the 13-month proposal remains to be stated. The calendar is not merely a system of time measurement designed by accountants and economists for measuring commercial units, comparing mercantile registers and tabulating financial and industrial data. It is also a fact in human life, having its bearing on every person, whatever his race, situation or intelligence. The whole life of humanity moves in a rhythm which is attuned to the calendar: the daily life of every one of us is subordinated to the order which is indicated by it. There exists unbreakable bonds between the calendar and the acts, emotions and feelings of all humanity: therefore if the problem of calendar reform is to be solved practically, those who lead the movement must take into full consideration the traditions, conveniences and susceptibilities of the common man. From this viewpoint, the 13-month year proves to be impossible.

MEMORANDUM TO VATICAN

(Communicated by the Rational Calendar Association, London)

IN ORDER TO explore in the most thorough manner possible the attitude of the Vatican and the central authorities of the Roman Catholic Church to proposals for a fixed Easter date and Calendar Reform, a Mission of Inquiry, organized by the Rational Calendar Association of London, visited Rome during the month of June, 1935. The Mission was supported by letters of delegation from The World Calendar Association, the Latin-American committees on Calendar Reform, the Bureau d'Etudes of Paris, and the Gesellschaft für Zeitgemässe Kalenderreform of Berlin.

At the head of the Mission was the Right Reverend Fernand Cabrol, Abbot of St. Michael's Abbey, Farnborough, England, one of the leading authorities of the Roman Church on all matters of liturgy and discipline, and himself an ardent supporter of a fixed Easter in a reformed 12-months calendar of equal quarters.

As a result of the inquiries made in Rome, the Mission came to the following conclusions:

1. The subject of calendar reform is under constant consideration at the Vatican, and close observation is being kept of the movement for reform throughout the world.
2. The subject of calendar reform is viewed by the Vatican as a whole, and the question of Easter stabilization cannot be detached from the question of general reform.
3. Before any action by the Holy See can be contemplated, it is in the highest degree desirable that unity should be established between the advocates of differing methods of reform, or, failing unity, the expression of an overwhelming opinion in favor of one system.
4. Such agreement upon a definite method of revision should have formal approval from the leading governments which, through the League of Nations, have already pressed for reform. If such an agreement is reached, and the Nations were to present the Holy See with a request that the Holy Father should examine the question, it is probable that the request would be welcomed. But until such agreement has been reached on a definite plan, it would be unwise for the League or governments to again approach the Holy See for an official decision.
5. It is desirable to make clear that the demand for calendar reform is not prompted by any sectional interests, but is universal.
6. The Mission satisfied itself that opinion in the Vatican is in favor of a 12-month system, and is averse to a 13-month year.

Through the good offices of Father Cabrol, a Memorial in Latin expressing the desire of civil communities for calendar reform and containing the proposals of the Rational Calendar Association, supported by The World Calendar Association and other committees, was presented at the Vatican, and was placed on record in the official archives of the Church.

The following is a translation of this Memorial, the Latin text being appended as a footnote on the next page:

"ON THE REFORM OF THE CALENDAR. Throughout all Christian nations today is spread a strong desire for a reform of the Gregorian

Calendar. Its present irregularities and inequalities disturb all forms of trade and business, and the work of the professions and of government is dislocated by the anomalies caused by the fluctuations of the movable feasts and the variations in the lengths of the months. There is general agreement that the world's work would be benefited by a perpetual calendar year in which all dates recurred always on the same days of the week, and in which the months and quarters were of equal length.

"In consequence a number of societies and associations have been formed for the promotion of this reform in all parts of the world. The principal are the *Rational Calendar Association* of London, the *World Calendar Association* of New York, the *Bureau d'Etudes pour la Reforme du Calendrier* of Paris, and the *Gesellschaft für Zeitgemässe Kalender reform* of Berlin, together with Committees in Latin-American countries. It is on behalf of these organizations, among whose members are numbered many Catholic Bishops, that the Right Reverend Abbot of Farnborough has come to Rome.

"All the above-mentioned organizations are agreed on the measure of reform to be aimed at. In brief, they desire firstly the stabilization of the date of Easter for all time upon a Sunday in the first half of April,

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DE KALENDARIO REFORMANDO. Diffunditur per totas Christianorum civitates Kalendarii Gregoriani reformandi magnum studium et strenuum. Tam incommodant omnibus qui negotia vel artes agunt Kalendarii inaequales pravique motus, quam perturbant doctores magistrosque et ceteros qui rem publicam omnino dirigunt anomaliae ..... quae vel e mobilium feriarum fluctibus vel e variis mensium cursibus exoriantur. Constat enim inter omnes ut omnibus beneficio sit talis anni fastorum ordo qualis eo faciat ne ulli fasti feriaeve incidant nisi iisdem per annos diebus neve menses ceteraeque anni divisiones aliae aliis enormitate quaquam praestent.

Quo studio nuper incitati. Societates Sodalitatesque quasdam ad Kalendarium reformandum tendentes instituerunt. Primae inter haec praestant *Rational Calendar Association* britannica, *World Calendar Association* americana, *Bureau d'Etudes pour la Reforme du Calendrier* gallica, *Gesellschaft für Zeitgemässe Kalenderreform* germanica et non nulli per Latinam Americam diffusi comitatus. Pro his Societatibus inter quas complexi sunt complures Episcopi Catholici, Romam advenit Reverendissimus Farnburgensis Abbas.

Quo modo reformandum sit Kalendarium omnis quaeque societas consentit. Breviter, primo desideratum est Pascam ita statui ut in saecula teneat Diem in primi mensis Aprillis dimidio Dominicam, deinde unam anni cuiusque diem e diebus hebdomadis excipi quae anno concluso incepto nondum proximo intercalaris fiat.

Multa intendit haec de re Pascali ratio. Dicitur enim apud laicos quod si huius diei festae ablatus esset fluctus, non superessent multa plurimis qui negotia vel mercedem agant incommoda, atque exactior fieret ratio negotiorum inter gentes vel inter civies actorum computanda (quae scientia statisticorum comparativa dicitur) et certiora tribunalium et scholarum tempora constitui possent quam hodie dum per XXXV dies vagatur festum illud. Quibus etiam rebus reputatis Gentium Societas, "Omnibus beneficio erit" affirmavit "non movendas esse ferias."

Plurimi harum societatum sodales qui multam operam dederunt rebus ecclesiasticis, sentiunt Pascam invariabilem ex Ordine Christiano tollere posse iniquum usum qui non in doctrina originali inhaerescat atque in Kalendarium Ecclesiae interpositus sit rationis causa hodie infirmatae. Consentiunt de hoc et Ecclesiae Protestantes Occidentales et Ecclesia Orthodoxa Orientalis eo ut quod tot consentiunt praemonstrare videatur (magnopere vero sperandum est) omnes Christianas Communitates se conjuncturas.

Tam vehementer desiderabat pascam non moveri posse gens britannica ut anno salutis MCMXXVIII senatus (qui *English Parliament* dicitur) eo consilio legem perferre voluit. Quae lex nondum decreta est, quamvis ab omnibus desiderata, quod Ecclesia Catholica nondum eidem consilio assentivit.

Similiter etiam beneficio communi atque Christianorum concordiae fore unum diem e diebus hebdomadariis excipi. Qui hunc usum petunt, ceteros CCCLXIV dies anni per LII spatia septem dierum numerari posse intendunt ita ut quemque annum Dies Dominica inducat et omnes cuiusque mensis fasti in iisdem hebdomadis diebus incidant. Quo modo Kalendarium in saecula constituetur.

Non tamen opus est Ecclesiae huic usui de die excipiendo studere, laicis enim tantum referre potest. Sed omnes paratiori animo vit accipient festum arbitrio Ecclesiae decretum. Intuita nulla Christianorum Communitas repugnare (exceptis eis qui *Seventh-Day Adventists* dicuntur), immo vero laudans optare coram populo Ecclesia Americana Episcopalis voluit.

Facillime, dicitur, uterque usus in anno salutis MCMXXXIX inire potest quia annum illum Dies Dominica inducet. Proximo etiam anno apud Gentium Societatem civitatum legati de his rebus decernere debent. Quae cum ita sint, hodie consilio vero magnum est opus.

and secondly the detachment of one day in every year from the days of the weeks, and its intercalation between the end of one year and the beginning of the next.

"The stabilization of Easter is desired on many grounds. From the lay point of view, it would remove many inconveniences to trade and industry. In particular it would make possible the accurate compilation of comparative statistics of national and international trade, and it would enable the dates of school and court terms to be permanently fixed instead of varying from year to year in accordance with the 35-day fluctuation of the feast. After a thorough examination of all these considerations, the League of Nations has stated that 'the common good calls for the stabilization of movable feasts.'

"Among the members of the societies advocating this reform are many serious students of religion who feel that the stabilization of Easter would remove from the Christian Ordo an anomaly which has no basis in true doctrine and was only incorporated in the practice of the Church for reasons which are no longer valid.

"Upon this point all the Protestant Churches of the West and the Eastern Orthodox Church are agreed, and it is felt that this reform would further the great cause of Church union.

"So great is the desire of the people of Great Britain for this reform that in 1928 the British Parliament passed an Act to introduce it. That this Act has never come into force is due solely to the fact that the Roman Catholic Church has not given its assent to the reform.

"The proposal to set aside one day out of the days of the week is similarly intended for the general benefit of mankind and the promotion of Christian unity. Its purpose is to enable the remaining 364 days of the year to be divided into 52 whole weeks, so that every year should begin on a Sunday and all the dates of the months fall always on the same days of the week. By this means a perpetual Calendar would be established for all time.

"This proposal is not necessarily of prime concern to the Church; it need only affect lay interests. But it would obviously be more acceptable to public opinion if it were accorded the sanction of the Church's authority. No Christian Community that has studied the question has found any objection to the proposal (with the exception of the Seventh-Day Adventists), and the Episcopal Church of America has expressed its official approval of it in the strongest terms.

"Both these measures of reform can most easily be introduced in 1939 when the year will begin on a Sunday. Next year delegates to the League of Nations are to be called upon for a decision. There is therefore great need today for the Church's guidance."

DR. FRICK AND THE REICH

By Erland Echlin

Secretary, Rational Calendar Association of Canada

Germany's interest in calendar reform was suddenly stimulated in June by an official announcement, printed prominently in every important German newspaper, that the Minister of the Interior had received a representative of the calendar reform movement, and had given the unqualified approval of the government to the plan for a new calendar.

HAVING been invited in June to lecture at the University of Berlin on the world movement for a new calendar, I took occasion a few days before the lecture to arrange a meeting with Dr. Frick, Minister of the Interior, who would be the authoritative spokesman for the present German government on this subject.

I had previously been in contact with the important voluntary organizations in Germany which are advocating a revision of the calendar, including the influential Chambers of Commerce, the members of the national committee which represented Germany at the international calendar conference in 1931, the Kiel Welt-Bund, and a Berlin committee which has done some valuable work.

Advocacy of calendar reform is not new in Germany. In fact the Kiel committee headed by Dr. Rudolf Blochmann has been in continuous existence for more than 30 years, and this antedates by nearly 25 years most of the other existing committees throughout the world. Dr. Blochmann's group bears the impressive title "Welt-Bund fur Kalenderreform," and it has a large and still-growing membership, actively engaged in urging the adoption of a simplified calendar of 12 months, which differs in no essential detail from the plan recognized today as The World Calendar. Through war, revolution, inflation and Social-Democratic republicanism, Dr. Blochmann's work has gone on, persistently and effectively.

Interest in calendar reform in Germany formerly extended to the scheme for a 13-month year. Several important industries tested out the plan for keeping their accounts and business records on a 13-period basis. The Eastman Kodak factories in Germany, which were the original sponsors of the plan, still use it.

After the initial studies of the subject by the League of Nations had been completed in 1923, official committees were appointed by the German government to examine all plans for calendar reform. Eight years later, in 1931, the German government participated in the League's international conference, which formally discarded all impractical plans for a new calendar, and officially narrowed the choice to two plans, the 12-

month equal-quarter plan known as The World Calendar, and the 13-month plan. The German official committee fully concurred with this action.

No definite choice, as between these two plans, had been made by Germany when the whole political structure of the country changed in the early spring of 1933. The committee which had been appointed by the former government, ceased to function, and as far as the new government was concerned no official recognition was given to the world movement for a new calendar.

In 1933 I spent the greater part of the year within the borders of the new Reich. Dr. Blochmann's League, I found, had carried on its work, in spite of the apparent lack of attention from the government. I helped inaugurate a parallel association in Berlin the Gesellschaft fur Zeitgemässe Kalenderreform under Dr. Aust. During 1934, this new group, advocating The World Calendar in its entirety, gained the notice of important political, business and clerical leaders.

On my return to Berlin this year, I determined to discuss the world movement and its relation to the German associations with the Minister of the Interior. With the many new ideas that Germany is bringing into the political and economic sphere, I felt sure that Dr. Frick's department would have more than a passing interest in calendar simplification. This view proved to be correct.

The Ministry is housed in the old red brick and stone building in the Konigsplatz formerly used by the Great General Headquarters staff of the Army. Then the first floor was occupied between campaigns by the great strategist, Field Marshal von Moltke. While waiting for the Minister, I looked through the old General's rooms, full of pre-war relics, now preserved as a museum.

Although I had not met Dr. Frick before, I knew a good deal about him. One of the early Nazis, a lawyer by profession, he had been a soldier, police-commissioner, politician and Cabinet Minister of Thuringia, before Hitler's advent to power. Now 58, he is the oldest member of the present cabinet — a Roman Catholic, slender, smooth shaven, cropped, calm and, I should say, extremely sincere. Dr. Frick is a warm friend and close confidant of Adolf Hitler.

On being shown into a comfortable corner of his big office overlooking the little park around the Victory Column, I explained briefly the object of the calendar reform movement and its growing strength throughout the world. I asked what consideration such a plan would receive in the New Germany and he confirmed the view that led to the interview.

"It would be strange indeed if Germany, advanced in so many other directions, neglected calendar reform," he said. "We are trying to simplify life for our people; The World Calendar plan seems to be directly along

those lines." It soon appeared that Reichsminister Dr. Frick knew most of the points I had come to discuss.

"In fact," he said, "I can consider myself the father of calendar reform in Germany, for already, in coordinating the different festival dates of the old political divisions, I have taken the first simplifying step in connection with the calendar." Dr. Frick expressed himself as firmly in favor of a fixed Easter and the whole principle of calendar revision,—to gain certain simplifying and stabilizing advantages, *providing the established number of months remains unchanged.*

His emphasis on this latter point will be easily understood by those who have followed the course of the new regime. For national, cultural and political purposes the ancient German names of the 12 months have been revived,—names like Seed-Month, The Harvest, Ice-Month. Farmers and those connected with the land have been encouraged to use these names within the limits of their own business. The addition of another month name—which would be necessary with the awkward 13-month plan—is unthinkable.

"I am in favor of a simplified calendar," Dr. Frick continued, "but until our people are better educated to the subject I would suggest that the movement remain in private hands."

"Will you consider appointing an official committee when the time for action arrives?"

The Reichsminister said that he would be glad to appoint such a body. Further, he suggested calling an international conference for discussion, indicating that he would have qualified and important representatives there. In closing, he expressed his appreciation at the opportunity he had had of expressing his views. Dr. Frick said that he was interested in the movement, approved of it in principle, and would like to be kept informed of its progress in Germany and throughout the world.

Our conversation had taken about 20 minutes. After some other topics were discussed, he bade me a cordial farewell and invited me to return at any time. I left with a clear feeling that The World Calendar had the approval of the new government.

The following official account of the interview appeared on the front pages of several hundred German newspapers on June 9, 1935:

The Reich's and Prussian Minister of the Interior, Dr. Frick, received the Canadian writer, Erland Echlin, and discussed with him, in the course of a long interview, the important question of calendar reform. Mr. Echlin asked Dr. Frick as to Germany's attitude toward the introduction of the so-called World Calendar, a plan aiming at a perpetual calendar in which the relationship of week-days and month-days would be stabilized, to be adopted uniformly by all nations.

Dr. Frick said that undoubtedly The World Calendar would be of great advantage, especially to business. Certainly Germany would not shut her eyes to the importance of such a new regulation and stabilization of the days and dates which make up the calendar.

He added that although the enactment of the new calendar was an official task, to be done by an international conference of governments, he felt that for the time being the advocacy of the reform should be left to private and unofficial agencies.

Dr. Frick pointed out that the German government during the past two years had given calendar questions a good deal of attention, and had actually undertaken certain minor reforms, such as a uniform program of holidays throughout the Reich."

This then provided the introduction to my lecture at the University of Berlin. In it I tried to show that any change of our present system of time measurement must be gradual and must retain our familiar months, weeks and seasons. I did not give much time to the discussion of the 13-month scheme, owing to the improbability, under the new cultural system, of it even being considered.

In Germany calendar reform appeals with peculiar force to an order-loving people. Through long years of the various associations and committees, and privately, it has had deep study.

Most Germans feel that with the direct encouragement of Reichsminister Dr. Frick the whole proposal has been lifted to a practical plane. The immediate result will not improbably be that Germany will associate herself officially in this movement with Great Britain, and with the forward-looking nations of South America whose governments have taken the first official measures to facilitate simplification of the calendar.

BUSINESS ARGUMENTS

By CHARLES D. MORRIS

(From a Report Published in "Marking Devices," a Magazine of Business Machinery)

MANUFACTURERS of business machinery are following with keen interest the progress which is being made throughout the world toward the revision of the present calendar. Advocates of revision point out that the irregularities and inefficiencies of the existing calendar result in certain definite inconveniences and loss to all those who use it, and that the adjustment of these age-old defects would result in important economies in time and money.

Savings will inevitably come from an improvement in this universal standard of measurement. The savings are not only in dollars, but also in time, and are accompanied by obvious efficiencies in accuracy and convenience. There will be economies in bookkeeping, accounting, statistics and similar operations. Less easily calculated are the more intangible improvements which will result in practically every phase of human endeavor.

Not only will the new perpetual calendar obviate the "adjustments" that are now continually necessary in comparisons of time periods for successive years, but also it will produce a natural and easy divisibility within the year, owing to the fact that days, weeks, months and quarters synchronize, thus facilitating the assembling, study and comparison of reports, records and data of all kinds.

Revision of the calendar, however, is not purely or even mainly a business matter. From a larger outlook, including statecraft, education and religion, the calendar no longer meets the various demands made upon it. The present calendar is a time waster; the new calendar is a time saver—whether examined from the viewpoint of transportation, industry, science or social and cultural activity. The new plan represents a long-delayed stage in the evolution of the world's system of time measurement, matching the progress which has been made in other fields.

PITY THE POOR EDITOR

By G. K. Dahl

Editor of "World Convention Dates," Hendrickson Publishing Co., New York City

WHAT the clock is to the daily newspaper reporter, the calendar is to the editor of a monthly magazine. Of the two writers, the former is far more fortunate in terms of regularity of routine: eleven o'clock never varies in its relationship to the important time-points of breakfast and luncheon, and the working-period from nine o'clock assignment to first edition is eternally the same.

But consider the poor magazine editor. Whether he schedule his deadline by a certain day of the week—such as the third or fourth Friday of the month—or by the date, the point is always roving. The mailing date for my publication, for instance, is the 28th of the month, so chosen because it facilitates getting copies into subscribers' hands by the first. During 1936, this date will roam so madly across the calendar that it will cover every day in the week. Conversely, if we fixed upon the final Friday of each month, for instance, it would fall on every date from the 26th to the 31st, inclusive. Since the final Friday in December happens to be Christmas, mailing day that month would have to be the 24th.

Of course, mailing day is only one of the "deadlines" which the magazine editor and publisher must observe. Most periodicals pay heed to a number of them: in our own case, we have a deadline for editorial text, usually the fifteenth of the month; two days later comes another for statistical material, which is always recorded "as of" the 17th. There are two deadlines for advertising; one for receipt of cuts and copy, and the other a closing date beyond which no corrections or revisions can be made. Because of the shifting nature of our present calendar, the number of working days between the various closing dates and the final deadline for printing never is the same in any two months.

Like the steel industry, your typical magazine editor is always either prince or pauper, in terms of the commodity which concerns him most—publishable manuscripts. Obviously, the greater the number of working days which intervene between the last mailing date and the next editorial deadline, the more text he will have on hand. And here we come to a paradox: the more time that exists for preparation or solicitation of manuscripts, the less he will need. The reason for this lies in the fact that the longer months with the least inconveniently placed weekends and holidays also mean a longer productive period for the advertising and statistical departments. And the more they obtain in the way of results—up to a point—the less the editor will be called upon to provide.

The statistical objective of our paper is implied by its title, *World Convention Dates,* and consists of securing for advance publication the dates and meeting places of some 18,000 convention-holding organizations per year. Our Research Department obtains this information by questionnaire direct from the associations: one working day more or less in the period between two closing dates will entail a difference of 100 or more listings for this section of the magazine. These announcements run about 100 to the page: so one day over means one page less to be filled with text. Conversely, one page less of this data entails an extra page of editorial copy—and the chances in such a case are that there will be a downward fluctuation in advertising, with a concomitant need for still more additional text. These direct results of the unstable calendar must be taken into constant consideration when it comes to scheduling the work of the editorial department. There can be no "blank stages."

Of course, the statistical editors are bound as tightly to the calendar. The annual rise or fall of the convention market is the life-pulse of our publication, and it is the only gauge available to measure the tide of delegates and their expenditures (9,717,669 people will spend $769,000,000 at conventions, expositions and similar events this year, as compared with an expenditure of $400,000,000 by approximately four million delegates in 1933). So our research staff is on its toes to keep abreast of the events as they are scheduled. We do not like to have any month of the current year compare unfavorably—in terms of coming sessions scheduled in our pages—with the same month of the previous year. It is true that these months are the same in number of days (save in the case of February, which has an extra day every four years), but the number of working days fluctuates according to the position of the weekends and holidays. Furthermore, since conventions practically never are held over weekends, the number of them in any given month (with seasonal variations, of course) bears a direct relation to the number of Sundays.

Another way in which instability of the current calendar makes our peculiar statistical function difficult lies in the fact that most of our research activities are projected in time, by which I mean that the convention dates we are engaged in gathering and compiling usually are for meetings to be held from eight months to three years in the future. "We will meet during the third week in October, 1937," a secretary informs us: the same mail usually brings a card or two referring to "the second Tuesday of May, 1938," or "Tuesday of Easter Week," or "the Sunday immediately after Christmas, 1936." A calendar like the one proposed by The World Calendar Association would go a long way toward diminishing irritations in our Research Department: it would be the same for every year, and we could frame it and mount it permanently on the wall.

But if our rambling old calendar gums up the editor's work, just think

what it does to the printer! Periodical printing is a specialized branch of the art, and the typical shop turns out five or more monthlies, with a weekly or two, and a rotated succession of quarterlies. These must be scheduled over the month in such a way as to insure an unbroken continuity of work for the several departments affected: linotypes and "stone men" must move in synchronized relation to the presses, which in turn affect the bindery and the mailing department. Printing presses which can turn out 3,000 or more sheets of 16 pages each per hour represent a sizable investment, and they must not stand idle if they are not to "eat their heads off" in overhead expense. Makeready crews cannot function until the forms are locked in the chaises: idle man-time is as costly as idle machine-time. Rigid adherence to the schedule is of paramount importance. One publication "held over" a day makes everyone else late.

Your typical printer, who knows the failings of publishers and the faults of the calendar, seldom uses definite dates when speaking casually of the magazines he prints. "The *Ladle* goes on about the 5th, the *Ribbon News* about the 15th, the *Standard* on about the 21st." The *abouts* tell the story. If one publication maintains a rigid deadline, the others must be shifted in compensation. Two papers which go to press during the same week this month may be separated by a weekend when the deadlines roll around again. If one "goes to bed" (is put on the press) on Monday, and the other on Thursday, two working days lie between: but a weekend intervening means the loss of two days, for the five-day week is the rule in the greater part of the highly organized industry. The only answer is a night-shift, which consequently may be needed one month and not at all the next, which involves a management problem.

For those magazines which enjoy large-scale distribution and newsstand sale, the difficulties are complicated by the fact that publication may be from two to three months in advance of sale, and shipments to various points must be made with a weather-eye upon the calendar. The custom is to release them all for final sale on the same date every month—which involves many a headache for the traffic department.

Of course, the ideal calendar for editors and printers would be identical for all months of the year, which also would remain constant and unchanging forever. Then all our deadlines and mailing dates would fall on the same days of the week, month after month and year after year.

This objective has been accomplished by the sponsors of the 28-day calendar, in which every month begins on a Sunday, and all the months are the same. At first blush, it might appear to be the answer to the publisher's prayer. The cost of the identical-date convenience, unfortunately, far exceeds the advantages to be received from the introduction of such a calendar—for in order to keep the months alike, it has been necessary to change their number from the convenient twelve to thirteen.

It would be difficult to find any other industry or trade which would suffer so great a dislocation from any calendar reform involving a change in the number of months. Advertising is the life-blood of the publication field, and the twelve-time contract is the standard insertion order in the monthly field. If the 28-day calendar were adopted, the monthly publication would be forced to introduce a 13-time rate: the advertisers' reaction is conjectural, but since most advertising appropriations are made on a yearly basis, the logical course for them to follow would be to demand no change in the total rate. In short, they probably would require thirteen insertions for the present cost of twelve.

Faced with this resistance, the publisher might conceivably continue to issue his magazine on a twelve-time basis, but then it no longer would be a monthly. And if the readjustment to thirteen issues could be made, he still would suffer all the other disadvantages which the 13-month calendar carries in its train—such as the impossibility of dividing it into halves and quarters, to mention only one. But it is almost safe to predict that America's monthly press will steadfastly oppose the 13-month calendar.

The so-called World Calendar, on the other hand, presents a vast improvement over the present one, without any of the penalties inherent in the alternative scheme. Its twelve months are not all identical, but there are only three variations to contend with, instead of seven, as at present. The 28th, for instance, falls on Saturday in each of the four months of January, April, July and October. In February, May, August and November it comes on Tuesday. In the four remaining months—March, June, September and December—it falls on Thursday.

The publisher or printer who wishes to avoid a Sunday deadline, under The World Calendar, has plenty of dates to choose from—for of all the days in the month, only thirteen of them can possibly fall upon a Sunday. In an entire year, the only dates which come on Sunday are: 1, 3, 5, 8, 10, 12, 15, 17, 19, 22, 24, 26, 29. Our present calendar makes avoidance of Sunday deadlines impossible.

Retention of the traditional four seasons of the year constitutes another advantage of The World Calendar, from the periodical viewpoint. There are a few industries or businesses which do not move with a seasonal rhythm, which affects directly all trade or commercial publications—and indirectly all which derive their support from advertising, which, of course, means practically every one. Under the 13-month calendar we would still have Spring, Summer, Autumn and Winter, but it would be difficult to exploit them.

There probably are trades and callings to which calendar reform means little, if anything. Among these, for the reasons given, it is impossible to include the field of periodical publishing. We have nothing to lose—and everything to gain—from the change, and the sooner the better.

ANCIENT CHINESE TIMEKEEPING

By Elizabeth Crump Enders

Students of Chinese culture and history are familiar with Mrs. Enders's "Swinging Lanterns," now in its tenth edition. For eight years she was honorary librarian of the Royal Asiatic Society. She has spent the past fifteen years in China and has travelled more than 50,000 miles in the Celestial Empire. She is regarded both in Asia and America as one of the leading authorities on Chinese customs, family life and characteristics.

WHEN the Republican government of China in 1912 came to a realization that the existing almanac of the land was of an overcomplicated form, and officially abolished its use, it issued a proclamation ordering the adoption of the Gregorian Calendar.

The Chinese people, however—the hundreds of millions of toilers of the soil—intensely averse to change of any kind, continue to cling to the ancient almanac. Instinctively, they seem to feel that it is a part of their existence—that its roots reach deep into their primitive Nature Worship—and to this day they depend upon it entirely for their guidance in sowing, reaping, hunting and fishing. Also, for the dates of their numerous private festivals. In fact, *The Book of the Year* reaches the highest magnitude of yearly sales of any one book in the world.

Through the many generations of laborious watching of the heavens, their highly complicated almanac evolved. The "First Measure," selected by their earliest forebears, was the moon, and to this day, for both sentimental and practical reasons, they tenaciously follow the Lunar Calendar. Each month is comprised of twenty-nine or thirty days—the month always beginning and ending with the moon between the sun and earth (the dark, or new moon). The year, too, finds its first day with a new moon, and likewise its last. In two and a half equinoxial years there are 31 new moons, or about 62 in five years. Based on a 12-moon plan, and yet to keep the seasons from making complete rotations, an intercalary month must be added every 30 months—or twice in five years. Hence, two years out of every five contain 384 or 385 days instead of some 354 days.

As far back as 2254 B.C. the reigning Chinese Emperor ordered his astronomers to ascertain the solstices and equinoxes, to employ intercalary months and to arrange the four seasons, so that definite instructions might be given to the populace as to the most advantageous planting seasons.

At that time, also, a Board of Mathematics was formed, and on the first day of every tenth month a great ceremony was held, when the sacred Almanac was presented to its only rightful theoretical source—the reigning Son of Heaven. He, alone, held the divine privilege of fathoming Heaven's laws. There were always three copies, in Chinese, Man-

churian, and Mongolian. Those for the royal household were placed in a sumptuously decorated sedan-chair and, accompanied by the exalted board, an Imperial Band, and numberless attendants, were carried within the palace. The Officers of the Board made three genuflections and nine prostrations before the Emperor and his family. Following a salute of guns, the Court Eunuchs then handed the holy bindings to the Son of Heaven, the Empress, the Dowager Empress, the Princes, and then to the other dignitaries, waiting in their robes of state. Governors throughout the Empire were next allowed their copies; and the death penalty was meted to any maker of a fraudulent *Book of the Year*.

The two important systems of the Calendar were the Moon Year, of 354 days—the 12 or 13 revolutions about the earth—and the Solar Year, of 365¼ days—the earth's revolution about the sun. Upon the latter depended the seasonal changes. To bring the lunar into correspondence with the solar, an intercalary month was added every 19 years. The winter solstice, now, must fall in the eleventh moon. The summer solstice, in the second, the autumnal in the eighth. The extra month must include the passage of the sun from one Zodiacal sign to another. The first, eleventh, and twelfth moons must not be duplicated.

The Gnomon—a primitive sundial—evolved, of definite assistance in harmonizing the lunar and solar years. By its lengthening and shortening shadows it taught its thoughtful students how to date the summer and winter solstices. Also the spring and autumn equinoxes, when daylight and darkness consumed an equal part of the twenty-four hours.

To mark the hours, long spirals of sawdust and clay burned off their sixty notches somewhat in accuracy. Then a rude clock—the clepsydras—used even now in rural spots, came into being.

Each Solar Year is divided into 24 solar periods of 15 days—"the joints and breaths of the year"—named appropriately as follows: About February 1st comes the Spring Stands. Follow: Rain Water, Excited Insects, Vernal Equinox, and Clear Brightness. The sun entering Taurus brings: Grain Rain, Summer Stands, Grain Fills, and Grain in the Ear. The summer solstice ends the polarite *Yang* half of the year—the lengthening days. Then follow the six months of the polarite *Yin*—the shortening days: Slight Heat, Autumn Stands, Limit of Heat, White Dew, Cold Dew, Slight Snow, Great Snow, etc. The winter solstice is the shortest day. The finishing periods are Slight Cold and Great Cold. Living in China, one finds these seasons very truly named—quite mysteriously so.

There are, as well, Sexagenary Cycles, both of years and of days. These bear names combined by characters from the ten Stems and twelve Branches. The ten Stems are cyclical signs, corresponding in pairs to the five elements—wood, fire, earth, metal and water. The twelve Branches, from the twelve-fold cycle appertaining to animals—rat, ox,

tiger, hare, dragon, serpent, horse, goat, monkey, cock, dog and pig. Sixty different pairs of these characters are combined to name these years, when the two first characters of the Stems and Branches meet again. The Almanac will name the first day of the month, and consecutively the corresponding Sexegenary day. In this way, this same day might be, for example, both the eighteenth and the sixtieth; and the following day the nineteenth and the first. All of this is most confusing, and causes great uncertainty as to research in historical dates.

Adding to these intricacies are other factors. Although the old Calendar computed time from the Emperor Huang Ti—2637 B.C.—every new Chinese Dynasty B.C., and also a few individual Emperors, wished to emphasize their God-given heritage by adopting a different month to begin the established civil year. Some even went so far as to issue a new calendar.

Another factor was the gradual introduction into the calendar of astrological superstitions, which took so firm a hold upon credulous minds that no amount of sound or scientific judgment could completely eradicate their incorporation. There is, for example, in the Lunar Zodiac, The Yellow Road, where early astronomers mapped out 28 constellations of stars—the mystical Palaces of the Moon. Astrologers attached momentous significance to these mansions, and warned the people as to the happy or direful results of undertaking any social or official event upon the day of the moon's resting in any one of them.

The Chinese Pantheon includes twelve Presidents of the Calendar Cycle in charge of the twelve earthly Branches, presiding over months, and watches of the night and day. There is Tai Sui—the God of the Year, whose dwelling, named by the Almanac, is yearly changed. Also Tai Yi—the Absolute—or Great Unity, connected with the Polar Star, and sometimes with the Supreme Being. The Purple Planet—the emblem of the Emperor—remains stable. But the scientific and sentimental inspiration of the Chinese Calendar, in the minds of this Oriental people, is above all else, the Shining Mirror—the unfathomable Queen of Night—the Moon.

The sweeping calendar reform inaugurated by the new Government of China, in the main, has completely failed. It is obvious that the time has come for some simplified form of Almanac to be given to the people. Inasmuch as the Gregorian Calendar has not proved popular, and is practically ignored by them, is it not evident that this is the moment for successfully launching into China the new World Calendar?

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DATES, LAW AND RAILWAYS

By Edward F. Flynn

Assistant to General Counsel, Great Northern Railway Company.

FROM a traffic and operating standpoint, the many advantages which will accrue to the railways from the adoption of The World Calendar have been quite thoroughly studied, set forth and explained by previous writers on the subject. From a legal standpoint, however, the railway situation has not been dealt with, although there are numerous reasons to believe that the proposed revision will be of benefit in simplifying the assignment of dates and in other ways.

For instance, if the date of a corporate meeting were fixed in the by-laws of a corporation for the first Tuesday after the first Monday of March, that day on The World Calendar would always be March 5. For another example I am quoting from the laws of one of our states providing for a county commissioners' meeting, which states: "On the Wednesday immediately preceding the second Monday in August, county commissioners shall meet, etc." The same law provides that the meeting shall be concluded not later than the second Monday in August. It can readily be seen that under The World Calendar these days can be set upon certain permanent dates, and, if the same dates were desired in August, they would always be August 8 and August 13 respectively.

Such procedure will probably prevent a great many errors and certainly will be much more convenient and simple than as at present provided. I do not find in any of our statutes that the Gregorian Calendar has ever been adopted as the official calendar, but there are many court decisions which hold the Gregorian Calendar to be our legal calendar. One of the decisions to which I refer holds: "The division of time into years, months, weeks, and days is the calendar division; and it is historically known that the Gregorian Calendar has been generally adopted. Where a division of time is used and no mention of any other system of reckoning time is made, it will be presumed that that calendar is to be used." (62 C.J. 960, *Engleman v. State*, 2 Ind. 91.)

The courts have taken judicial notice of the origin and history of the Gregorian Calendar, as witness the following excerpts from an important decision: *"Origin and history.* Our attention is naturally drawn to the history of the divisions of time into years, months and weeks. It was early discovered, that they were necessary: Observation pointed out that the apparent course of the sun around the earth occupied a period of a little more than 365 days. The changes of the moon naturally suggested the division of months. Among the old Romans, their first king, Romulus, divided the year into ten months, giving to four of them 30 days, and to the rest 31.

It was soon discovered that this did not answer; there were not days sufficient for the sun to perform its circuit, and he inserted as many days as were necessary to bring it up to the year succeeding. His successors abolished this method, and added two new months, to wit, January and February. Thus the year was made to consist of twelve months, numbering 350 days and, to make it agree with the solar period, intercalation—that is, inserting days, was resorted to, and they were intrusted to the Pontifex Maximus, whose duty it was on the first of every month to proclaim (calare) the month, with the festivals occurring in it, and the time of the new moon. From the verb 'calare' originates the word 'calendar,' which means the division of time into years, months, weeks and days, and a register of them. Our almanac is an instance of it. In consequence of the mistakes and negligence of the Pontifex Maximus, great confusion ensued in the recurrence of the festivals, which was endeavored to be rectified by Julius Caesar. His system continued until 1582, when Gregory XIII introduced what is called the new style, and is still in use under the name of the new, or Gregorian Calendar." (*Rives v. Guthrie,* 46 N.C. 84.)

The Gregorian Calendar having been thus legalized, it would be necessary, in order to make some other calendar effective, to have the various states and the United States adopt such new calendar by legislative enactment. This in itself would involve thousands of changes in our various statutes, not only to provide for such adoption, but to make the necessary alterations in dates, etc., that such adoption would require.

I am of the opinion, however, that the good done by the simplification that would be effected by the adoption of The World Calendar would more than offset the time and effort required to make it operative. All dates which might be called "roving dates" would be stationary under The World Calendar.

However, there is one phase of the legal aspect of the adoption of The World Calendar on the affairs of railways and business generally that perhaps has not been given the consideration its importance demands. I refer now to the effect the adoption of The World Calendar would have on existing contracts, agreements, leases and obligations. The provisions of contracts cannot be changed by laws passed subsequent to the execution of such agreements. While it is true most of these contracts run for only a few years, some cover a period of 99 years and others as much as 999 years.

The Constitution of the United States provides: "No state shall pass any law impairing the obligation of contracts." (U.S. Constitution, Article 1, Section 10, Clause 1.) Similar provisions forbidding the passage of statutes impairing the obligations of contracts are found in the constitutions of many of the states. (12 C.J. 987 and cases cited.)

For this reason serious thought and study must be given to the method

to be pursued in making as simple as possible the ascertainment of the dates of The World Calendar which correspond with the dates of the Gregorian Calendar.

If a contract now in force should require the doing of some act such as the payment of money (or the delivery or exchange of property or the thousand and one obligations the performance of which agreements may require) on a certain date, that date should be readily ascertainable. It would be quite simple to arrange a supplemental table to be approved by law. This table could be made a part of The World Calendar, by a supplement attached thereto.

I have prepared such a table which I believe to be accurate. It is not at all complicated. If my conclusions are correct, The World Calendar and the Gregorian Calendar are identical for the first 59 days of each year, except Leap Year. The dates are the same for the first 60 days of Leap Year. From the 59th day (60th in Leap Year) all through the remainder of March, April, May, June, July and August, the dates differ; that is, after the 59th day of the year to and until, but not including, the 244th day of the year, which is September 1 under both calendars. From September 1 to December 30, the 364th day, both inclusive, the days in both calendars are identical as to their respective number from January 1. December 31 under the Gregorian Calendar would be Year-End Day under The World Calendar. The dates for performing obligations or making payments under existing contracts, therefore, would not be changed or affected in any way from January 1 to February 28, both inclusive, nor from September 1 to December 30, both inclusive. In other words, those interested in existing contracts, agreements, obligations, leases, etc., need pay no attention to the Gregorian Calendar for 180 days of the year, but for the other 185 days, they would find a supplemental table of corresponding dates necessary. In Leap Year, from February 29 to the end of June, including Leap-Year Day, the matter would still be somewhat more complicated. A supplemental table for this portion of Leap Year could easily be prepared, and the problem, therefore, would not prove serious or difficult of solution.

In Leap Year from July 1 on until Year-End Day, or December 31, of the Gregorian Calendar, there is no further difference in The World Calendar, as the extra day in Leap Year should be taken into consideration just as at present.

One can readily see the necessity of providing and abiding by such a supplemental calendar, because, if under an existing contract a payment of a million dollars were required to be made, for example, on March 31 of any future year when The World Calendar was effective, there would be no March 31, and the payment would legally have to be made on the 90th day of the year which March 31 is under the Gregorian Calendar and which under The World Calendar will be March 29. Under the Gregorian Calendar August 1 is the 213th day of the year, while under The World Calendar the 213th day is July 31. Again, this apparently bothersome situation is not as serious as one might believe, because most contracts run for only a few years and, as all new contracts after the adoption of The World Calendar will be made under that calendar, soon business would have no further need, except in a small number of cases, proportionately, for reference to the Gregorian Calendar or the supplemental tabulation.

It may be noted that if Year-End Day and Leap-Year Day are made legal holidays, it would merely mean that the same rule regarding contracts, etc., which now applies to holidays, would likewise govern as to these new legal holidays. Also of interest is the fact that the birthdays of those born before the adoption of The World Calendar would be celebrated on the corresponding dates as indicated by the rule set forth above; that is, from February 29 to and until the last day of August, both inclusive, birthdays of those born under the Gregorian Calendar would be celebrated one or two days earlier. From September 1 to December 30, inclusive, there would be no change in birthdays. One born on December 31 would, of course, celebrate his birthday on Year-End Day.

HISTORY OF OUR CALENDAR

By Professor Arthur E. Kennelly

Harvard University

This article embraces the first half of a distinguished paper on "Proposed Reforms of the Gregorian Calendar," read before the American Philosophical Society at its annual meeting in Philadelphia, April 18, 1935. The full text is available in the official "Proceedings" of the Society, which is to be found in most important libraries or may be obtained from the Secretary, 104 South Fifth St., Philadelphia.

IT is proposed to present here an outline of the history of the Gregorian Calendar from the days of ancient Rome to the present time. A calendar, as we here use the term, is a chronological tabulation system for maintaining the historical sequence of successive days with respect to the annual changes in the positions of the sun and/or moon as well as to the established relations of clock time, so that any event, either in the recorded past, or in the expected future, may be assigned its appropriate place in the system.

An almanac is a calendar tabulation for a single year.

Many calendars have been maintained in different countries at different historical periods, such as the Arabian, Chinese, French Republican, and Hebrew calendars. Some of these are still in recognized existence, but the calendar which receives attention here is that which has come to be maintained by the civilised world today, and is known as the Gregorian Calendar.

Every calendar of precision comprises two portions:

1. An astronomical portion, based on astronomical observations and not subject to human modifications or control. Historically, calendars have been (a) *Lunar*, or based upon the synodical month; *i.e.*, the interval between new moons. Only a very few existing calendars are lunar. (b) *Solar*, or based on the number of mean solar days in a tropical year (interval between two successive vernal equinoxes). At a vernal equinox, the sun appears to cross the celestial equator from south to north. The Gregorian Calendar is solar, with lunar vestiges (months). (c) *Luni-solar*, or designed to conform to both lunar and solar periods. The Christian church calendar is luni-solar.

2. A conventional portion, based upon tradition, custom, or agreement, such as the number and names of the months, or of the days in the week. These conventional elements are susceptible of modification by international agreement.

The reform proposed in the Church Calendar relates both to astronomical and conventional portions. The reforms proposed in the existing

Gregorian Calendar relate to conventional elements only, not astronomical.

Historically, our modern calendar is derived from the calendar of ancient Rome, as modified by Julius Cæsar (46 B.C.), Augustus Cæsar (8 B.C.), and Pope Gregory XIII (A.D. 1582).

The Roman calendar was luni-solar in design. It aimed to have the months follow the observed changes in the moon, and the year follow the seasons provided by the sun. The appalling task of reconciling the lunar and solar periods into the almanac for each year was left to the college of pontiffs (pontifices) at Rome. They were appointed for life, and their senior member, the pontifex maximus, announced the dates, ceremonies and festivals of the year. It was known that the mean lunar month, from new moon to new moon, was close to 29½ days; so that alternate months of 29 and 30 days would keep pace, on the average, with every second new moon. Twelve such alternating months would make a year of 354 days which would be about 11 days short of a seasonal solar year. In order to rectify the year, an extra brief month of 11 days would have to be intercalated at or near the end of the year, or a 22-day month every two years. Such a thirteenth or intercalary month of flexible number of days was a common occurrence in the almanac of ancient Rome, under the name of Mercedonius. It was the recognized purpose of the pontiffs to keep the vernal equinox, or passage of the sun across the equator from south to north, on March 25. This could be brought about on the average with the aid of Mercedonius, but not every year.

Although it is believed that the alternation of 29- and 30-day months existed at one period in the Roman calendar it gave place to the following arrangement which was theoretically in force up to the date of Julius Cæsar's dictatorship.

The thirteen-month calendar, sometimes attributed to Flavius, is supposed to have been introduced about 300 B.C. A Flavian cycle of four years had 355, 378, 355 and 377 days, giving an average of 366¼ days, or one day in excess of the seasonal year.

It may be noted that all the regular months, except February, have an odd number of days (29 or 31). This is attributed to the unpopularity of even numbers in Rome during that period. Odd numbers were regarded as more fortunate than even numbers. Even the length of the common year was changed, it appears, from 354 to 355 days, thus throwing it out of conformity with 12 lunations. Some writers consider that February was allowed to keep an even number of days, partly because it came at the end of the list, and partly because it was devoted to the Infernal Gods, and so was exempt from good fortune.

The intercalary month was inserted during alternate years, not at the end of February, but between the 24th and 25th of that month; so that the year always ended with the last days of February.

It is evident that the Roman calendar, up to the time of Julius Cæsar, was irregular and indefinite. Historians have difficulty in assigning dates

TABLE I: Flavian Calendar

Month Number	Name of Month		Days in Month
	Latin	English	
1	Martius	March	31
2	Aprilis	April	29
3	Maius	May	31
4	Junius	June	29
5	Quintilis	July	31
6	Sextilis	August	29
7	September	September	29
8	October	October	31
9	November	November	29
10	December	December	29
11	Januarius	January	29
12	Februarius	February	28
			355
13	Mercedonius Every second year	—	22 or 23
			377 or 378

Non-perpetual calendar used in Republican Rome, from about 300 B.C. up to Julius Caesar's reform in 46 B.C. Luni-solar. Twelve and thirteen months alternately. Subject to variation and adjustment at pontifical will. No weekdays.

[1] The mean Synodical month is now taken as 29.5305881 mean solar days, in A.D. 1900, and very slowly diminishing (about 1 second in 4000 years).

to the changes it underwent between 500 B.C. and 50 B.C. The account here given must be taken with reserve, owing to incomplete historical agreement.

JULIAN CALENDAR

The great leader Gaius Julius Cæsar (102-44 B.C.) was elected to the college of pontiffs when he was about 30 years of age. In 63 B.C. he was elected pontifex maximus, a position he held for the rest of his life. He was thus faced officially with the complexities of the Roman calendar. By that time the almanac had drifted more than two months out of step with and ahead of the seasons. The summer months of the calendar were meeting with the spring season, and the winter calendar months with the autumn season. During his military visit to Egypt (48 B.C.), Cæsar must have come into contact with the Egyptian calendar, which although also luni-solar, was simpler and more permanent than that of Rome. He seems to have decided at that time to reform the Roman calendar. As soon as he was elected dictator in 46 B.C. he set to work upon the reform, aided by the Egyptian astronomer Sosigenes of Alexandria, Egypt. He aimed to restore the vernal equinox or opening of Spring, to the 25th of March, also

to make the new calendar entirely solar, and perpetual, *i.e.* without the intercalary month of Mercedonius. Having ascertained that the best available astronomical estimate of the seasonal year was 365¼ days, he ordained that despite popular superstition, the twelve months of the year should have alternately odd and even numbers, except February, which should have 29 days in common years and 30 days every fourth year. This would make the average year length 365¼ days, as is seen in Table II. All years were to commence on the first day of January. In this way, the attempt to conform with the phases of the moon would be abandoned, and the calendar should automatically keep pace with the solar seasons indefinitely.

TABLE II: JULIAN CALENDAR

MONTH NUMBER	NAME OF MONTH		DAYS IN MONTH	DAYS IN QUARTER	DAYS IN HALF YEAR
	Latin	English			
1	Januarius	January	31		
2	Februarius	February	29 or 30		
3	Martius	March	31	91 or 92	
4	Aprilis	April	30		
5	Maius	May	31		
6	Junius	June	30	91	182 or 183
7	Julius	July	31		
8	Sextilis	August	30		
9	September	September	31	92	
10	October	October	30		
11	November	November	31		
12	December	December	30	91	183
			365 or 366		365 or 366

Perpetual and solar calendar set in action by the Dictator Julius Caesar, January 1st, A.U.C. 709 or 45 B.C. Twelve months, no weeks. Fixed year of 365 days. A supplementary day inserted every fourth year, without sequential name, between 24th and 25th February, making average length of year 365¼ days.

To rectify the vernal equinox, Cæsar inserted into the year 46 B.C., not only Mercedonius, but also two new and special extra months, bringing the total length of that year to 15 months and to 445 days. It was called the "year of confusion." January 1, 45 B.C., or 709 A.U.C., launched the first year of the new calendar. There happened also to be a new moon on that date, which was hailed as an auspicious event.

The Julian calendar was a vast improvement over the preceding fluctuating Roman almanacs, that used to vary unpredictably from year to year. The Julian half years varied only between 182 and 183 days, in common years, while in leap years they were equal. The quarters varied only between 91 and 92 days. Except for common Februarys, the months were

all either 30 or 31 days. It was easy to remember which was which, because the odd months—January, March, May, etc.—had all odd-numbers of days (31); while the even months—February, April, etc.—had an even number of days (30), except February in common years. Common years had always 365 days and leap years 366. The extra day of leap year was inserted between the 24th and 25th of February, where Mercedonius had been employed and not at the end of February as at present. In the calendar of Cæsar's time, there were neither weeks nor weekdays, and days were designated by their positions in their respective months. What we call February 25th (when common Februarys had 29 days) was called by the Romans *sextilis* (sixth) before the Calends of March (March 1st inclusive). Consequently, when every fourth year, the Romans inserted an extra or supplementary day just before the 25th of February, they called it the *bissextilis* before the Calends of March, *i.e.* the doubled sixth before March Calends. What we call leap years, they called *bissextile* years, and that name is still used in some of the languages of Europe.

The Julian calendar was a shining epoch in world chronology, not only because it cut loose from the moon, and adhered solely to the sun in the apparent rotation of that body around the zodiac, through the tropical year, but also because it purported to be a fixed and perpetual calendar, free from the intercalations of Mercedonius months every now and then. Such a fixed calendar was of great value in ordering the work of the widely extended Roman empire along the great roads that diverged from the golden milestone in the Roman forum. According to Julian calendar theory of Cæsar's time, the Julian almanac was fixed at 365 days, and twelve months, for an indefinite period into the future. It was understood that in every province of the empire, the bissextile day would be inserted every four years, as an *encore* to the sextilis before the Calends of March, without calling for a special calendar for leap year or change in the regular almanac program. There may also have been popular objections to a year of even number days.

NEW YEAR'S DAY IN ROMAN AND JULIAN CALENDARS

There is abundant evidence that the old Roman year commenced in March, but the day of New Year differed at different historical periods. It may at one time have been the equinoctial day of March 25. At another time it was March 1. The years were commonly associated with the names of the Consuls who held office in them; so that when the new Consuls entered office, there was a tendency to make their date of entry the new year's day. Administrative exigencies affected the date, because special consular duties might require their inauguration date to be somewhat altered. This caused New Year's day to fluctuate accordingly. To eliminate this uncertainty, the rule was adopted about 220 B.C., fixing the

New Year inauguration on the Ides of March (March 15), but as the empire expanded geographically, this was found to be too late in the winter to enable a new consul to take up his duties, with the arrival of Spring, in some more remote province, so the New Year inauguration was changed, in 153 B.C., to January 1, which date remained fixed thereafter in Julian chronology. Cæsar therefore made no change in the date of the Roman New Year's day of his time. In later centuries, however, with the spread of Christianity over Europe, January 1, as a so-called pagan festival, fell into disfavor for the beginning of the year, and various church festivals were adopted in its stead, at different times and places, without otherwise departing from the Julian calendar. It was not until A.D. 1582 that January 1 was restored to its position as church New Year's day by an edict of Pope Gregory XIII, but it was not until 1799 that this restoration over Western Europe was complete. During the middle ages, various dates for the beginning of the year are found in the almanacs of churches and courts, such as Christmas, Lady Day (March 25) and Easter. The usage differed from country to country. In spite of this confusion, however, the Julian almanac, beginning on January 1, seems to have been maintained by historians.

In the year 44 B.C., when the Julian calendar was in full operation at Rome, the Roman senate changed the name of the old fifth month (Quintilis) to Julius, in honor of Julius Cæsar. In the same year (710 A.U.C.), the great dictator was assassinated in the Roman Senate House.

Owing to some mistake in applying the Julian leap-year rule of an extra supplementary day or bissextile day every four years, three leap days too many were introduced into the calendar count during the first thirty-six years of Julian calendar application. The error was, however, detected and corrected by cancelling and withholding three leap days in subsequent years; so that the Julian leap year count was rectified by the year 3 A.D. (756 A.U.C.)

AUGUSTAN CALENDAR

In the year 8 B.C., the Roman emperor Augustus, a nephew of Julius Cæsar, persuaded the Senate to alter the name of the month Sextilis to Augustus. In order to have as many days in Augustus as in Julius, and also to avoid any misfortune attaching to an even number of days in Augustus, its days were increased from 30 to 31, by taking one day from February, which in the pre-Julian calendar had held 29 days. Moreover, since this transfer would have brought three 31-day months into immediate sequence, a redistribution was made of the days in the later months of the year as shown in the next table.

This Augustan modification of the Julian calendar, as shown in Table III, is the same as we now have, the change in A. D. 1582 to the Gregorian

calendar not having affected the distribution of days among the months. It will be seen on comparing Tables II and III, that the changes made by Augustus spoil the Julian calendar both in symmetry and simplicity. In our modern calendar of Table III, the half years differ by at least two days. The months range from 28 to 31 days, instead of from 29 to 31. Instead

TABLE III: AUGUSTAN MODIFICATION OF JULIAN CALENDAR

MONTH NUMBER	NAME OF MONTH		DAYS IN MONTH	DAYS IN QUARTER	DAYS IN HALF YEAR
	Latin	English			
1	Januarius	January	31		
2	Februarius	February	28 or 29		
3	Martius	March	31	90 or 91	
4	Aprilis	April	30		
5	Maius	May	31		
6	Junius	June	30	91	181 or 182
7	Julius	July	31		
8	Augustus	August	31		
9	September	September	30	92	
10	October	October	31		
11	November	November	30		
12	December	December	31	92	184
			365 or 366		365 or 366

Perpetual solar calendar introduced by the Emperor Augustus in 8 B.C. Twelve months and no weeks; but nundinal letters A . . . H, commencing with A on January 1st each year. Supplementary day between 23rd and 24th February, with no nundinal letter, and bissextile denomination.

of having Julius' six short and six long months, we have Augustus' five short and seven long months. Instead of the short and long months following in simple alternation, the Augustan sequence is so awkward, that it is not easy to remember.

DEFECTS OF JULIAN CALENDAR

The Julian calendar, as modified by Augustus, began to show a defect as time went on, for a reason probably beyond Julius Cæsar's knowledge. In 46 B.C., the best available astronomical estimate of the length of the tropical year was 365¼ days (365.25) or 365 days 6 hours of mean solar time. There were no telescopes in those days, and facilities for measuring time were crude by comparison with those now available. More recent determinations [1] have placed the length of the tropical year 365.2422 days, close to 365 days 5 hours 48 minutes 46 seconds, or 11 minutes 14 seconds shorter than the estimate taken by Cæsar. This is not a large discrepancy, but it kept adding up, year after year, in the same direction. The sun

[1] Taken as 365.24219879 for the year 1900 and very slowly diminishing (about 1 second in each 200 years).

would get round to crossing the equator at the vernal equinox each time nearly twelve minutes ahead of the time allowed by the Julian calendar. In five years, the sun would be nearly an hour ahead, and in 128 years, one day ahead. If the sun passed through the vernal equinox in 46 B.C. on the 25th of March, as Cæsar seems to have designed when starting his calendar, then at this rate of change, the vernal equinox would fall on the 24th of March about the year A.D. 80. Spring would thus open about one day earlier on the calendar every hundred and thirty years. When Cæsar faced calendar revision in 46 B.C., the error was in the opposite direction, for Spring opened nearly 90 days late by the old Roman calendar.

In A.D. 325, the Emperor Constantine convoked a general council of Christian prelates at Nicæa or Nice, in Bithynia, Asia Minor, not far from Constantinople. This was the first œcumenical or universal ecclesiastical council of the Christian church, and acquired much historical importance. Its sessions lasted more than two months. Among the many matters discussed, were some relating to the Augustan-Julian calendar. The vernal equinox, which had been associated with March 25 in the early Roman calendar, and had been supposedly restored to that date by Julius Cæsar, was found to fall on the 21st of March, in A.D. 325. This has remained the reference date for the vernal equinox down to the present day. The vernal equinox of 1935 is given as at 13.18 or 1.18 P.M. G. C. T., on March 21.

GREGORIAN CALENDAR

As the middle ages rolled by their centuries, it became increasingly evident that the Augustan-Julian calendar was somewhat too long, and that spring was arriving earlier and earlier in the almanac. Representations had been made to Pope Sixtus IV in the 15th century in favor of reforming the calendar; but no action was taken until February, 1582, when Pope Gregory XIII, having satisfied himself that the equinox had retroceded to the 11th of March, or ten days earlier than on the calendar,* issued a Bull, or decree that the Julian calendar should be superseded by a new and Gregorian calendar. The change was to be made by dropping ten days from the calendar of 1582, and changing the 5th of October to the 15th. Moreover, in order to prevent the recurrence of the error in future, three leap years were to be omitted in each 400 calendar years. In preceding centuries, every centurial year such as A.D. 1500, had been a leap year, because it was evenly divisible by 4; but in the Gregorian calendar, only the centurial numbers divisible by 400 were to be leap years. Thus the century numbers of the years 1600, 2000, 2400, etc., were to remain leap years, but 1700, 1800, 1900, 2100, etc., were to be reduced to common years.

* On one of the Vatican buildings at Rome is a tower called The Tower of the Four Winds (*Torre dei quattro Venti*), not ordinarily open to visitors. In this sixteenth-century tower is a room still called the Calendar Room (*Sala del Calendario*). On the floor a meridian line was laid out and on fine days, a ray of sunlight, admitted through an aperture in the south wall, crossed the meridian line at apparent noon. The astronomer Ignazio Danti was thus enabled to demonstrate to Pope Gregory, in 1581, the ten-day dislocation between the true equinox and the calendar date.

The Gregorian calendar under which we now operate, thus differs only from the Augustan-Julian calendar which preceded, through a sudden jump in the calendar, once for all, of less than two weeks, to rectify the equinox to March 21 and then the above slight change in the leap year rule, which comes into action only in certain centurial years. It has been shown that the leap year correction rule of Gregory is itself incomplete, and that it leaves a small residual error; but this is stated to be only one day in 3300 years, and can be rectified by a special adjustment of the centurial leap year rule in due time.

The astronomers credited with the mathematical work involved in the Gregorian reform are Ghiraldi of Naples and Clavius of Rome.

October 15, 1582, is the epoch which marks the first introduction of the Gregorian calendar. The Gregorian calendar thereafter became known as the "new style" and the Augustan-Julian calendar as the "old style." These styles differed by ten calendar days in 1582. The new style was adopted immediately in Spain, Portugal, Rome and most of Italy. Most of the Catholic countries of Europe adopted it by the end of 1599. Protestant Europe began to adopt new style about 1700. Great Britain and her North American colonies changed together to new style in 1752. By that date the discordance amounted to 11 days, and almanacs of that period show that the eleven days, from September 3 to the 13th inclusive, 1752, were suppressed; so that after Wednesday the 2nd there followed Thursday the 14th. Some riots are stated to have occurred in England at the time, with the mobs shouting for the "return of their eleven days." Later still, the new style was adopted by Japan in 1873, China in 1912, Russia in 1918, Roumania in 1919, and Greece in 1923. It came out in the discussions of the League's General Conference of October, 1931, that there were still communities in Yugoslavia adhering to the Augustan-Julian calendar; so that the adoption of the Gregorian calendar is, perhaps, not quite complete today, more than 350 years after Pope Gregory's "new style" was inaugurated. It is, however, permissible to say that the Gregorian calendar is now in substantially universal use.

In the old Roman calendar, the days of the month were successively marked with the letters of the alphabet ABCDEFGH, the letter A being attached to the first day of the year. These cyclic eight letters were called nundinal letters. This provided a grouping of eight days, or a sort of 8-day week. The 7-day week was imported by the Christians into Roman chronology after the Emperor Constantine brought Christianity to Rome in the fourth century of our era (A.D. 325). In the middle ages, the letters a, b, c, d, e, f, g were commonly retained in Julian almanacs, with a capital opposite the dates of Sundays. This Sunday capital letter was called the Dominical Letter of the year. These alphabetical indications practically disappeared from almanacs after A.D. 1800 in favor of the week-day letters.

The names of the week-days in the Christianized Roman empire followed the planets Moon, Mars, Mercury, Jupiter, Venus and Saturn as still retained in the French Lundi, Mardi, Mercredi, Jeudi, Vendredi and Samedi; but the first day of the week was named for the Lord's Day (Domenica, Domingo or Dimanche). In Britain, the Sun gave its name to the Lord's Day, while the Teutonic deities Tiu, Woden, Thor and Freya took the places of Mars, Mercury, Jupiter and Venus.

For many centuries the Roman era dominated the chronology of the European world. It reckoned in solar years from the traditional epoch of Rome's foundation (A.U.C. or *ab urbe condita*). There is some difference of opinion among historians as to the epoch date. It is, however, commonly accepted that any year N since the accepted date of Christ's birth in the Julian calendar, is year 753 + N A.U.C.; so that A.D. 1935 Julian, is 2688 A.U.C. Any year N in the Julian calendar, before Christ, would be 754 — N A.U.C. Thus, Julius Caesar's death in 44 B.C. occurred in 710 A.U.C.

The Christian Era, with its epoch or starting point at the accepted date of the birth

of Christ, is now so generally used that it is hard to realize that it was long coming into acceptance. Historians declare that expressions such as "In the Year of Grace," or "In the year of our Lord," abbreviated to "Anno Domini" or A.D., were not introduced until A.D. 525, and it was much later before the custom was followed generally. There has been dispute over the date of Christ's birth, over a range of five years, and it is generally believed that the epoch now in use is too late by four years; but whatever the evidence may be, it is most unlikely that any change will be made in the accepted epoch; the confusion in historical literature would be too great.

The custom of assigning dates in the Christian Era before Christ, or B.C., is stated to be still more recent than the use of A.D.

The Julian calendar did not establish a new Era in Rome; it was regarded as a mere rectification of the existing Roman calendar. However, for purposes of astronomical chronology, it was proposed by Scaliger in 1582, to retain the Julian calendar with the epoch at 4713 B.C. (January 1 at noon G.M.T.). The length of each year in this Julian Period Era is just 365¼ days, as assumed by Julius Caesar. The error in regard to the seasons of the year is thus ignored for the sake of simplicity in computation. January 1, 1935, of the Julian calendar is thus 1st January 6648 of the Julian period. In this way, the number of mean solar days between any two events, whose dates are known in Julian reckoning, may be readily computed. The Julian day number for noon G.M.T. on January 1, 1935, is 2 427 804. = (6648—1) (365¼)—13.

OBITUARY NOTES

SIR JOHN SANDEMAN ALLEN, member of the British Parliament and leading figure in the marine insurance world, died in Liverpool on June 3. His interest in calendar reform was shown in the halls of Parliament and in the executive committee of the International Chamber of Commerce. As Vice-President of the Association of British Chambers of Commerce, he was influential in gaining the active cooperation of these bodies in the movement originated by Lord Desborough in the Central London Chamber.

FRANZ VON MENDELSSOHN, senior partner in the Berlin banking house of Mendelssohn and Company, died in Paris on June 13 at the age of 70. A leader in finance and business, he was instrumental in the stabilization of Germany's finances. As a member of the Council of the International Chamber of Commerce, he was long interested in calendar reform.

JAMES BROWN, senior partner in the banking house of Brown Brothers, Harriman and Co., and one of the leading American authorities on domestic and international commerce and finance, died in New York on June 9. He was a prominent advocate of The World Calendar, and inaugurated a study of calendar reform by the Chamber of Commerce of the State of New York.

MELETIOS, Greek Orthodox Patriarch of Alexandria, died in Egypt on July 29, at the age of 65. He had been prominent in the advocacy of calendar reform in his church for a decade, and conferred with representatives of The World Calendar Association in Athens a year ago.

DR. CHARLES R. BARDEEN, dean of the University of Wisconsin Medical School, died at Madison, Wis., on June 12. He had been a member of The World Calendar Association for four years.

BISHOP RALPH E. URBAN of the Protestant Episcopal diocese of New Jersey died in Philadelphia on May 19, at the age of 60. He had been a member of The World Calendar Association for about a year, and was influential in the passage of calendar reform legislation by the Episcopal General Convention in 1934.

ROYAL STATISTICAL SOCIETY

Report of Special Committee on Calendar Reform

Abstracted by CHARLES D. MORRIS

MORE than a year ago the Royal Statistical Society appointed a special committee to study and report upon the statistical aspects of various proposals for the reform of the calendar. Members of the committee were: Dr. L. Isserlis, Chairman; Sir Napier Shaw, L. R. Connor, R. G. Glenday, H. Leak, and Dr. E. C. Rhodes.

Their report, published in the Journal of the Society (Vol. 98, pages 380-2), gives a full endorsement as to the need in modern life for a revision of the calendar. It demands retention of the quarterly division of the year, and condemns as impractical the proposals for a 13-month year.

The first conclusion reached by the committee is stated as follows: "The existing calendar presents real difficulties in statistical work, both in comparisons of statistical material within the year and in comparisons from year to year."

Next, the report deals with the need for a fixed Easter. "Some of the statistical difficulties will be removed by the fixation of Easter. It is therefore desirable that this should be made operative. But Easter cannot be completely fixed unless the calendar is such that the days of the week fall on the same days of the month in all years."

Turning to the problem of general revision, to make the calendar perpetual, the report may be summarized as follows:

"In statistical data which depend on time measurements the order of importance of the units in common use appears to be: (a) day and year; (b) quarter; (c) week and month.

"Quarterly statistics are essential in the case of the data of economics and commerce. These should, in the case of any reform of the calendar, be made more and not less comparable than at present. This consideration appears to rule out completely the proposed year of 13 months. Individual bodies in industry would of course be at liberty to group their statistics in four-week periods.

"It is desirable that the year should have a fixed distribution of weekdays; that is, that Nov. 26 for example should fall on the same day of the week every year. Extra days will have to be introduced. The Rational Calendar Association suggests four quarters each containing three months of 31, 30 and 30 days, the year ending with an intercalary day and containing in leap years a second intercalary day."

The report closes with a discussion of certain minor obstacles to adoption of such a proposal and a consideration of the proposal for intercalary weeks, a proposal rejected by the League of Nations four years ago.

TOWARD A COMMON OBJECTIVE

By CHARLES C. SUTTER

Director of The World Calendar Association

(From the August Issue of the Magazine "World Convention Dates")

THERE are certain types of organization which, lacking a central association, nevertheless need to maintain a close cooperation and understanding, in order to insure that they are working harmoniously and efficiently toward their common end.

In many such cases, a central association would be desirable. But frequently there are definite obstacles in the way. This is particularly true in the case of organizations working internationally. For example, take the case of committees in twenty or thirty countries working for calendar reform. While their cause is practically identical, there are differences in the "structure" of these committees which make the establishment of a central bureau well-nigh impossible. Many of the committees are official, appointed by governments, and it is difficult for such committees to join in any international association with committees which are private and definitely promotional in their aims.

The center of the movement for calendar reform is the League of Nations, which has been dealing with the matter, as a clearing house of research and information, for more than seven years. But the League occupies such an exalted and judicial position that it naturally seeks to avoid any appearance of partisan propaganda in relation to any subject.

Other obstacles to central action by the various international organizations devoted to calendar reform are the language difficulty, the enormous geographical distances between committees in Buenos Aires. Singapore, Constantinople, New York, and Paris, and of course the lack of any large financial resources to provide for the expense of conventions, central secretarial costs, and so on.

Nevertheless, here are more than 20 organizations, scattered throughout the world, each working for precisely the same cause—some engaged mainly in research, others mainly in propaganda. And nobody's work will be effective unless all others advance an equivalent distance at the same time. Probably few causes or objectives have such need for united international effort. For calendar reform can only become a fact if the new calendar is adopted simultaneously by practically every nation.

There are a great many unusual obstacles to be overcome in the adoption of a new calendar. Within each country there is a heavy handicap of inertia, and an equally difficult handicap of ignorance. In England, 183 years ago, when eleven days were dropped in order to bring the calendar back into step with the sun and seasons, there were riots in the

streets and the populace paraded past the parliament buildings carrying signs, "Give us back our eleven days." In Greece today, there are frequent riots over the decision of church and state to make this same change, in order to bring the old calendar of Julius Cæsar into consonance with the improvements of our own Gregorian calendar.

Such difficulties are due almost entirely to ignorance, and must be overcome by a patient and protracted educational effort.

Some of the national committees working in this cause are seven or eight years old; others are comparatively new. The American group, incorporated under the title "The World Calendar Association," was organized in 1930, and has a present membership of more than 8,000. It is by far the largest of all the organizations—the British "Rational Calendar Association" has about 1,000 members, the Rational Calendar Association of Canada has 500. Most of the other national groups consist merely of a central committee, generally appointed originally by governmental action and therefore enjoying a quasi-official status—such as the German National Committee on Calendar Reform, the Italian National Committee, the Swiss and Belgian Committees. France is represented by an organization which is called "Bureau of Studies on Calendar Reform." Turkey has a voluntary committee with close governmental connections. Germany, in addition to its official committee, has two voluntary committees working cooperatively. Latin America has a closely knit chain of nine national committees, which have a central coordinating group under a Chilean scientist.

The American organization, being the largest group, has taken upon itself the task of promoting a unified effort and understanding between the twenty far-flung committees, stretching from Constantinople to Santiago, Chile. This coordinating effort is based on a regular program which embraces:

(1) A constant exchange of letters between the 20 committees, giving full details of each committee's activities.

(2) Exchange of printed matter and circularizations.

(3) An annual visit by the President of the American organization or other delegated official, to as many of the committees as possible, to the League of Nations, and to regional conferences held at convenient centers. A full report of these visits is sent promptly to all committees and is filed with the League of Nations.

(4) Publication of a quarterly Journal—The "Journal of Calendar Reform"—which constitutes an open forum for all the committees to exchange news and views on the subject. (The Journal is published only in English, owing to the enormous expense of duplicating it in French, Spanish, Italian and German. This is admittedly something of a handicap to its largest possible usefulness in non-English speaking countries. But leaders of the movement everywhere are sufficiently familiar with English to be able to read the Journal, and can then pass any desirable material on to their constituencies through their ordinary channels of press and circularization.)

This rough-and-ready method of maintaining inter-Association relationships has been successful. It has resulted in keeping the calendar

committees in twenty countries unified as to aim and purpose.

The type of reform advocated is identical, and it has been important therefore to keep a certain standardization of terminology and detail. This has its difficulties, because of the various languages involved. For instance, such a term as "Leap Year" has definite language difficulties. The English phrase is obscure in origin and has no meaning at all when translated literally into any other language. The usual word for Leap Year in the continental languages is derived from the Latin "bissextilis" (which means literally "second sixth," and was the Roman way of saying that the extra day of Leap Year was to be regarded as a second-sixth-day-before-the-Calends-of-March).

All through the calendar, language difficulties arise. The names of months and weekdays vary widely. Religious feast-days figure largely in the calendars of some countries. Whitsun and St. Sylvester's Day are of the highest calendar importance in certain European countries. The quarterly division of the year is a vital matter in countries with large world-commercial interests, but in Spain and many Spanish-speaking countries the year is also divided into three sections of four months each.

A main task, therefore, in maintaining inter-Association relationships between the calendar-reform groups in twenty countries is to standardize, so far as possible, the terminology of the calendar and of calendar reform. The very title of the proposed new calendar has many variants. It is known in America as the "World Calendar," in England and Canada as the "Rational Calendar," while the Swiss patriotically speak of it as the "Swiss Plan." Latin America knows it as the "Mundial Calendar," while Germans painstakingly call it "the 12-month equal-quarter plan."

The only formal and official conferences dealing with the subject are called at intervals of four years by the League of Nations. Here official delegates to the League meet and go over the progress made toward a new calendar during the intervening period. They are mostly diplomats, rather than calendar experts, and their deliberations are therefore assisted by experts from the various national committees. Thus the quadrennial League meetings become a center for meetings of the world leaders on this subject. The next League meeting will be held in the Spring of 1936.

One of the intricate relationships to be maintained by advocates of calendar reform is that which deals with the churches. Because the calendar touches the churches very closely, and because calendar reform in past ages has been handled customarily by the church, it would be helpful to have church approval for any proposal to inaugurate a new calendar. This means that the inter-association relationships among the twenty calendar reform committees must also include the great central church organizations, and the liaison with the churches must be constantly and punctiliously maintained. The Vatican, for example, has

usually been approached in the past through its calendar expert, the Vatican astronomer, as well as more formally through the Papal Secretary of State. The Eastern Orthodox Church has made several very progressive pronouncements on the subject of calendar reform, and for many years had a formally appointed delegate to deal solely with this matter. The world organization of Protestant and non-Roman churches is the Universal Christian Council, with headquarters in Geneva: it has assigned one of its most active departments to keep up a continuous service of research and information on the subject of calendar reform.

The plans of the American committee for maintaining inter-Association relations have, therefore, included a constant contact with international church organizations. Delegates are sent to important international church conferences, and the inter-Association relationship enables these delegates to carry credentials from all the twenty calendar-reform committees. For example, a priest who recently went from England to Rome to confer with the Vatican on calendar reform actually went as the representative not merely of a British committee, but as the representative also of calendar reform groups from all the Roman Catholic countries in South America, and American and Canadian committees.

The type of inter-Association relationship which has been developed by the calendar-reform committees, under the leadership of the American group, has an enormous value in any world movement. It enables the leaders of the movement to turn a united front almost instantly toward any opportunity for advancing their cause. If an opening for discussion of calendar reform comes, the individual who undertakes the discussion can add enormously to the weight of his address through the fact that he represents not merely a small national group, but also similar groups in all parts of the world. For example, the head of the Canadian calendar reform association recently visited most of the European committees, and while in Germany had an opportunity to speak officially with the Minister of the Interior on the subject. His interview preceded a lecture which he delivered on calendar reform at the University of Berlin. Both lecture and interview were widely featured in the German press, mainly because the Canadian delegate—thanks to inter-Association relationships—spoke not merely for Canada, but for a worldwide opinion.

This outline of a method of maintaining inter-Association relationships among twenty world-wide groups may perhaps require some clarification of the movement for calendar reform. It is a movement which was started about twenty-five years ago, and which in its early stages was pushed to world attention by the International Chamber of Commerce. Twelve years ago it came officially under the aegis of the League of Nations.

It should be noted that the new calendar is one which can be put into effect with practically no disturbance of existing records or systems.

ROMANCE OF THE CALENDAR

By P. W. Wilson

CHAPTER II: THE ORIGINAL THOUGHT

THERE is an instinct among birds, never adequately explained, at which animal psychologists themselves express their amazement. About the end of August, whatever may be the weather, swallows—say in England—migrate southwards and often fly for thousands of miles. At the beginning of April, they are back again—multitudes of them—in their old haunts. These birds, in their simple way, have arrived at a working calendar.

Naturalists watch a waterhole in Africa where wild animals bathe and quench their thirst. Each species—it is seen—has its own hour of the day for visiting the resort, and the giraffes appear on the scene not daily, but every five days. These tall creatures have adopted the N.R.A. week! An observer watched a tortoise in his garden. During the winter it hibernated, but, on the same day for many years, it made its reappearance and solemnly crossed his lawn. This pachyderm had thought things over and agreed—broadly speaking—with a calendar in accord with the sun.

Of our own observation, not one of us can say for certain when or where he was born. It is only in the course of years that the infant faculties of perception and of memory are developed. His birth is thus a fact of which man must hear at second hand. And however learned he may be in other matters, he has to recognize that, on this information, his mother is the highest authority.

Generations of archaeologists are searching for the cradle of mankind. When and where did Mother Nature first rock the cradle? She alone can say and she is one who knows how to keep a secret. Up to the present, this field of inquiry has been no more than one of those guessing competitions in which one person's guess is as good as another's. Was it in Egypt that *homo sapiens* first saw the light of day? Was it in Babylon? Was it as some say in equatorial Africa? Was it in the India where cities of unexpected antiquity have been uncovered?

On one point we can speak with confidence. Primitive man had to improvise his home. He dwelt in caves. He dwelt in trees. He desired a roof of some kind over his head.

Whatever might be man's shelter, he realized that his environment changed from instant to instant. It was always changing. Sometimes it was light. Sometimes it was dark. Sometimes it was hot. Sometimes it was cold. Existence had recurrent phenomena impossible to ignore.

Hence it was that *homo sapiens*, when he stood erect and used his

thumbs in a human manner, was not long in conceiving a certain idea. He realized the value of what we call time. He looked upon time as something to be measured and determined. Without some kind of reckoning of time in his kitbag, man could not take a step in the upward path of progress. There may be still a few communities where the idea of time is so rudimentary that it has not resulted as yet in a calendar. But those communities are classified as savage, not civilized.

The Calendar is thus an ultimate original of remotest antiquity. Some aboriginal communities still have no complete calendar.

There is no edifice—it is scarcely conceivable that there are any remains of an edifice, however fragmentary—that antedates the calendar. To offer one conspicuous instance, it seems to be clear that the Sphinx at Ghizeh—the oldest and greatest single monument ever achieved by man—was carved in an Egypt where, for hundreds and possibly thousands of years, a calendar had been in use. A Hebrew calendar was ancient when Solomon built the first Hebrew temple and, since the last Hebrew temple disappeared at the fall of Jerusalem in the year of our era 70, a Hebrew calendar has been in use for eighteen centuries.

Archaeologists are at the moment greatly agitated over what may have been the earliest alphabet. When did men first substitute a few phonetic symbols for the use of pictures, as writing? And who were these inventive literateurs? Were they Phoenicians? Were they Hebrews? It is not for us here to say.

Enough that the most ancient alphabet, wherever discovered, is modern compared with the calendar. There is no document known among men or conceivably lurking in buried cities that can begin to rival in antiquity the measurement of time. That measurement may be regarded as man's first cultural thought.

It is a fair assumption that the Ten Commandments are more than three thousand years old, nor would anybody of serious intelligence speak lightly of the fundamental moralities that were thundered from the awful summits of Mount Sinai. In authority over the human will, the Ten Commandments—even in days when every man does what is right in his own eyes—have never been and will never be superseded.

The calendar is older than the Ten Commandments by thousands of years, and it has to be added with regret that the calendar is also more generally observed. Many people kill. Many people steal. Many people bear false witness. But few indeed are the offenders who—even if they be murderers and thieves and slanderers—challenge the day of the week, of the month, of the year. In the significance of the calendar, there is something that preceded law as we recognize law, and the calendar is a writ that runs of itself where the law has yet to be accepted and enforced.

Everyone who is anybody has an idea that he knows about Magna

Carta. Compared with the calendar, that scrap of sheepskin, inscribed by order of King John in 1215, is among the latest of documents. The need for a calendar was realized and met thousands of years before the aspirations for political freedom, as we understand that term, began to be expressed in definite terms; and in lands where freedom has never been known, in lands where freedom as an experiment is said to have failed, the calendar is in unchallenged use. Dictators may overawe parliaments and control the press. But they cannot quash the Signs of the Zodiac and the successions of the seasons. It is one thing to abolish votes in a polling booth, quite another to erase dates from newspapers and contracts.

The Declaration of Independence is today among the universals. Everywhere it has influenced and will influence the mind of man. Yet this disruption of sovereignty did not disrupt the calendar. There was a Fourth of July in Philadelphia, and a great day it was. But the very fact that the day has to be known as the Fourth of July, is an admission of allegiance to the month of July, and this allegiance is trans-Atlantic. Is there a Fourth of July only at the White House? The Fourth is still the Fourth at Buckingham Palace and Windsor Castle.

A writing whatever it be that is like the calendar unchanged in its compelling influence over mankind by the promulgation of the Ten Commandments as Law, by the acceptance of Magna Carta as Liberty, and by the Declaration of Independence, must be writing of peculiar adaptability to the race. What is Sinai? A rock jutting in solitude out of a desert. What is Runnymede? An island meadow within one of the world's smallest rivers. What is Independence Hall? In size, it is among the most modest of Philadelphia's public buildings. The calendar pervades all the Sinais—all the Runnymedes—all the Independence Halls that have been, are or ever will be. Here is a charter that was ratified on a speck of planetary dust wheeling through the infinite flow of illimitable space.

The Ten Commandments are law, Magna Carta means liberty, the Declaration of Independence asserts equality, and the calendar, in the even flow of its quiet unassuming utility, is a perpetual witness to all of these three essentials to human happiness. It expresses law. It expresses liberty. It expresses equality.

When a person uses the calendar, he accepts a certain rule. It is an absolute rule. It means that he cannot see by the light of the sun unless he obeys the light by which he sees. Not for an instant can anyone of us escape from his own shadow and the person who supposes that he can change his shadow or abolish it altogether is insane. So much for law.

In the calendar, there is Liberty. Man does not impose this law on fellowman. It is with the sun, moon, and stars alone that the individual has to deal, and the dealings are direct. Alexander the Great visited Diogenes who lived in a tub. "What can I do for you?" asked the con-

queror of half the world. "Get out of my light," answered the philosopher. No authority, however insistent, can intervene between man and time.

Inherent in the calendar is Equality. In wealth, in poverty, people differ. Often the differences are tragic. Time is the same for all. You may have millions. I may have nothing. But, in seconds, minutes, hours, days, months and years, I am as rich as you are. Perhaps I am richer.

We need not be surprised, then, if the use of the calendar has anticipated what, in these days, we understand by Law, by Liberty, by Equality. Without atmosphere, there cannot be life, and time is atmospheric.

There are discussions of the authorship and date of the Book of Genesis as it has emerged into our own literature. With those problems, we are not here concerned. It is enough for us that the Book of Genesis is what it is called—a book of beginnings—a fascinating glimpse into origins, including pedigree, birth certificate and title deeds of the calendar.

Take the pedigree. At the dawn of creation, so we read, "God divided the light from the darkness" and "called the light Day and the darkness he called Night." That evening and that morning were the first day.

The birth certificate. On the fourth day, the calendar began to be apparent. Sun, moon and stars were ordained "for signs and for seasons, and for days, and for years." The final elaboration of the calendar was the week. When "the heavens and the earth were finished and all the host of them," the Seventh Day was set apart as a Sabbath or day of rest.

The title deeds. It was to the Patriarch Noah that these were delivered. Man had endured a flood which we now know to have been historic. He was given an assurance that no such catastrophe in the future would ever be permitted to disturb what may be called the average of the weather. "While the earth remaineth," we read, "seed time and harvest and cold and heat and summer and winter and day and night, shall not cease"—the sign of which covenant is that cooperation of light with water which builds over the landscape a mystical arch radiant with the prismatic glories of the rainbow. It is the record of the rainbow that is certified, year by year, in the calendar.

(To Be Continued)

REGARDING DAYLIGHT SAVING TIME

By Ralf Briton, Moorestown, N. J.

CONVENIENCE of a fixed calendar will be a benefit to nations using daylight saving time, because it will give fixed dates for the beginning and ending of this summer-time period, and will encourage international uniformity. Under the present system, it is customary to begin and end the period at 2 a. m. on a Sunday, regardless of the day of the month. Thus in most countries the dates for beginning and ending shift over a range of seven days. In Great Britain, where a more complicated rule prevails, the dates shift over a 14-day period. Under the proposed new calendar, a longer period of daylight saving might be adopted, perhaps for 26 weeks from March 24 to Sept. 24. The reverse period would be observed in the Southern hemisphere.

EDITORIAL PARAGRAPHS

Calendar reform is becoming urgent. Irregularities in our present calendar make accurate business statistics and comparisons impossible. — Chicago *Rotarian.*

Thoughtless the man must be who advocates dividing the year into 13 parts. Twelve is, of all numbers, the most useful in its divisibility.—Arkansas *Methodist.*

Governors of states, bishops, leaders of industry and university professors are among those who are devoting time and thought to the early adoption of a simplified calendar.—Los Angeles *Saturday Night.*

It is generally conceded that the present calendar is out of date and causes much inconvenience in the world at large and also in the church.—New York *Lutheran Bulletin.*

No doubt Dr. Cadman and the other clerics participating in the movement feel, like many of the laity, that calendar revision of some sort is inevitable, that a change from the present arrangement cannot be averted, and that in facing the situation it would be well to work vigorously for a sensible calendar in order to prevent the adoption of an awkward and grotesque system. — Providence *Journal.*

With such advantages, calendar reform seems certain to come. Hardly an objection has been launched against it. Continued education will eventually remove skepticism.—Asbury Park *Press.*

The subject is of sufficient importance to challenge advanced thinking of statesmen and public thinkers everywhere. It seems almost certain that a 13-month year would be confusing, and that The World Calendar is much more to be desired.—Amsterdam (N. Y.) *Recorder.*

The new World Calendar advocated by the Chamber of Commerce of the State of New York has much to commend it. If adopted, all holidays would be stabilized. Unlike the 13-month plan, this calendar would make the transition from old to new an easy matter.—Sebring (Fla.) *American.*

Most of the major creeds already approve a fixed date for Easter, or at least are willing to discuss the matter sympathetically.—Baltimore Evening *Sun.*

The Chamber of Commerce of the State of New York is convinced that the predominance of evidence is in favor of the revised 12-month year, and that the majority of the people of the world hold a similar view.—Aurora (Ill.) *Beacon-News.*

Increasing demand of business concerns has led various governments to study seriously the various plans for calendar reforms. — Greenwood (Miss.) *Commonwealth.*

It is now understood that there is nearly practical agreement to the 12-month plan. Legislatures in a number of countries have approved it.—Utica *Observer Dispatch.*

Proposals for changing the calendar are gaining ground. Perhaps the most important advancements since 1930 were the progressive steps taken during 1934. Six Latin-American countries endorsed the World Calendar, and many international scientific and church organizations took favorable action. — Wakefield (Mass.) *Daily Item.*

National and international forces have been at work for some time on a program to change the present calendar. Viewed from all angles, a perpetual calendar would go a long way toward steadying the business and recreational life of all peoples.—Bucyrus (Ohio) *Telegraph Forum.*

After the experience of this year surely no shopkeeper or trade organization is in any doubt as to the urgency of having a fixed Easter.—*Scottish Drapery Journal.*

Benefits of The World Calendar are seen as numerous by leaders in business and professional life. They point out its importance in the interests of accuracy.—Bridgeport (Conn.) *Herald.*

Because the present calendar is most unsatisfactory in its relation to world and national, even personal affairs, The World Calendar Association is working toward this sensible new arrangement of our future days.—Danville (Ky.) *Advocate.*

EXCERPTS AND REVIEWS

Action by the Churches

By Dr. S. Parkes Cadman

(Report of the Federal Council's Department of Relations with Churches Abroad)

From the Official Report of the December, 1934, Dayton Conference

WORLD agreement on calendar reform is a field in which the increasing effectiveness of the work of the Research Department of the Universal Christian Council has been demonstrated. The League of Nations requested the Council to discover the attitude of the non-Roman churches of the world toward a proposed stabilization of the date of Easter and the reform of the calendar. The task was undertaken through special financing for this project, which did not burden the regular budget.

For the first time in modern history all the churches of the world have actually been consulted on a specific question and replies are now in hand which seem likely to lead the League to proceed with its plan.

One result will be that instead of having Christians celebrating Easter, Christmas and other festivals on different dates respectively, the whole Christian world will at last be one in at least this particular.

Religious Considerations

By W. E. Harper

Dominion Astrophysical Observatory, Victoria, B. C.

(From an Article in the Journal of the Royal Astronomical Society of Canada)

TWO main proposals for calendar reform are what may be called the 13-month and 12-month plans. The former was first mentioned by the French Philosopher, Comte, afterwards adopted by Cotsworth and given wide publicity by George Eastman. It has been erroneously stated that it received endorsement of the Royal Society of Canada in 1909. It is the scheme, however, which our Canadian government instructed its delegate to vote for at the League of Nations in 1931. Apart from religious grounds, it is claimed there will be objection to its seemingly radical nature, and the possible strength of such opposition would militate against its likelihood of adoption. Then there is the objection to the number 13 not being divisible into the half and quarter years corresponding to the natural division of the seasons. Moreover, the extra cost of having 13 instead of 12 monthly audits, returns, etc., means an 8 per cent increase in certain business costs.

The 12-month plan changes only 7 dates, yet has all the desirable features that business is demanding for comparative statistics.

The only serious objection to revision is based upon religious grounds. There is a break in the 7-day cycle, and against this the Jews, Seventh-Day Adventists and Seventh-Day Baptists protest strongly. They claim that the 7-day cycle has existed since the beginning of things.

It would be doing these Sabbatarians a grave injustice to suggest that they are unreasonable or intolerant. But in the final analysis the majority must decide. With a world membership of 300,000 for the Adventists and an approximate Jewish world population of 15,000,000, it is seen that these opposing parties constitute less than one per cent of the world's population, so they must recognize the rights of the other 99 per cent, should the latter decide for revision.

One cannot but feel that the objections of these people are based upon misunderstanding. Even if we were to accept the six days of Creation in a literal sense as being identical with our days, there would still remain the difficulty of believing in an unbroken continuity of weeks and designated days from the beginnings of world structure to the present. I believe foremost Jewish authorities recognize three different calendar systems as employed at different times in ancient Israel, and so it is hard to agree with those who hold that the present seventh day of the week is the direct descendant of the one observed in the late days of the writer of the Creation story, to say nothing of one dating back to the Creation itself.

I think most Christians would accept the arrangement of the new calendar. I do not think calendar reformers are out to destroy the weekly day of rest, a divine

ordinance which has been of the greatest blessing to mankind. Those opposing reform suggest a revision in which the odd day is held over for five or six years, until seven have accumulated. Such a year would not meet the requirements for comparative statistics any better than the present calendar.

A way out of the impasse would be for those countries which so desire to make one or both of the odd days (Year Day and Leap Day) not only holidays, but religious holidays. This method might overcome the opposition now leveled at reform. Such action would have to be left to each country to settle, as we are speaking in terms of a world calendar and many nations are outside the pale of our Christian religion, having therefore no concern in the question.

The thing we must not do is to try to force this reform upon a world unready for it. We must educate the people to what is involved and what benefits are likely to accrue. In due time the desire for change will become insistent. The years when the scheme could start, with Sunday falling on the first day of the year, are 1939 and 1950.

No Excuse for Thirteen

By E. K. Eason

Secretary Irish Committee for Calendar Reform

THERE is a strange paradox about calendar reform: if we can secure "fixity" there is no excuse for using 13 months; if we cannot secure "fixity" there is no possibility of continuing to use 30 or 31 day months for international statistics.

Firms which are using 13 statistical periods in a year are not using them because they like 13 periods. They are using them because they are dealing with present-day realities and not with the new conditions that would exist if we had a fixed calendar. But many of them have failed to realize that arguments based on the present-day realities of a shifting calendar do not hold good in the different conditions of a non-shifting calendar.

A characteristic feature of modern life is the large scale of operations which involve decisions based upon the reading of compiled data and not upon direct observation of the facts. It is upon the face value of the record that action is taken nowadays. An executive decision is based upon the trend of movement; that is to say, upon a comparison of two sets of data rather than upon the absolute value of one set of figures. The basis of action is the ratio T:Y, in which T represents figures for today, and Y represents figures for yesterday. T equals a period in the current year, of an appropriate length; Y equals a previous period as nearly similar as possible.

There are several rhythms in any particular business. Some daily, some weekly, some monthly, some quarterly, but the majority annually, because the solar year is the predominant unit of time. Because of the variations throughout a year, the important ratio required for accurate judgment is A:B, in which A represents the figures for a period in this year, while B represents a similar period in last year.

In the present shifting calendar we can get no exactly similar periods in any two consecutive years. But where the weekly rhythm of business transactions predominates, a week ending on, say, Saturday, Nov. 25, in one year is very nearly the same as the week ending on Saturday, Nov. 26, of the previous year. Similarly a compilation of statistics for four weeks ending Saturday, Nov. 25, is almost comparable with that for four weeks ending Nov. 26 of the previous year, *provided* that monthly, quarterly or annual figures appearing within the two periods are either negligible or equally comparable.

In statistics within the control of particular businesses it is thus possible, by means of four-week periods, to counteract the shift in the calendar and present statistics containing face-value.

If, however, we eliminate the shifting altogether, as would be done if the perpetual World Calendar were adopted, any period of any length ending on Nov. 25 would be exactly similar to a period of the same length in any previous year. Consequently there would be no necessity of compiling statistics in the cumbersome 4-week periods now used by certain businesses.

So if we get *fixity* through The World Calendar, almost all arguments for the use of a 13-period year collapse.

CURRENT PRESS COMMENT

Business Urges Change

Bridgeport (Conn.) Herald

Business and political leaders throughout the country are renewing their efforts to effect a change from the Gregorian calendar, now in use, to a World Calendar which regulates the 12-month year.

An extensive campaign is being carried on to win for the latter general and world-wide acceptance.

International and national groups, including the International Chamber of Commerce, the World Federation of Educational Associations, the American Bankers' Association, the American Bar Association and the National Academy of Science are behind the move.

"The question is one which can only be disposed of by international action," declares Andrew W. Mellon, ex-Secretary of the Treasury.

Others who have been sponsoring the change are General James G. Harbord, chairman of the Radio Corporation of America; William Randolph Hearst, publisher; and Lammot duPont, president of E. I. duPont de Nemours and Company.

Making Progress

Tampa (Fla.) Times

With no great furore, but with intelligent planning and unremitting effort, advocates of a reformed and more logical calendar are making notable advances toward a goal that has been sought for years, but which heretofore has always fallen just short of accomplishment.

Various state and local chambers of commerce, numerous national and international scientific bodies, and the League of Nations itself, in recent years, have taken cognizance of the increased sentiment favorable to calendar reform; and a recent bulletin of The World Calendar Association reports significant progress.

It is argued that by adoption of The World Calendar, the transition from the old to the new order would be easier because of the retention of the 12-month year. It also would have the advantage of stabilizing religious and secular holidays and the change could be made with practically no disturbance or disarrangement to business or industry. July 4 would always fall on Wednesday, Christmas on Monday, and so on.

Latest convert to The World Calendar plan is the New York State Chamber of Commerce, which recently unanimously adopted resolutions pledging that organization to the support of the new reform.

Clubwomen Start Studies

Montreal (Canada) Gazette

Clubwomen throughout the United States are being urged to include in their programmes for the coming year a formal study of the history of the calendar.

A 24-page "Study Outline" for use in connection with such programmes has just been issued by Mrs. Margaret Kulp, executive secretary of the Pennsylvania Federation of Women's Clubs. It includes endorsements of the proposed studies by such prominent women as the late Jane Addams, Miss Mary E. Woolley, Congresswoman Virginia Jenckes, Miss Grace Abbott, Mary Roberts Rinehart and Mabel Willebrandt. Even from abroad there are letters from Miss Eleanor Rathbone, member of the British House of Commons, and Mlle. Rozet of the University of Paris.

Desirable and Feasible

Nottingham (England) Guardian

The Nottingham Chamber of Commerce, Lord Trent presiding, adopted the following resolution:

"That the Nottingham Chamber of Commerce being of opinion that irregularities of our present calendar cause many avoidable inconveniences to trade and industry, and in particular vitiate all comparative statistics, expresses its belief that it is both desirable and feasible to introduce a perpetual 12-month calendar, and further expresses the hope that the government and the authorities of the Church of England will make representations to the Vatican with a view to securing assent to stabilization of Easter.

JOURNAL OF CALENDAR REFORM

EDITORS

CHARLES D. MORRIS CHARLES C. SUTTER

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ELISABETH ACHELIS, *President*

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WE HAVE recently received a copy of the "Progress Report" of the Rational Calendar Association of London. The membership of this organization has increased by more than 150 per cent in the past 18 months, indicating a rapid growth in British interest and activity as regards calendar reform. Like most British associations, it looks upon the subject of its activity from an Empire viewpoint, and the London group has already been the inspiration for the starting of an energetic organization, under the same name, in Canada—which is probably the precursor of similar offspring in other parts of the far-flung British Empire. Indications of interest in calendar reform are already seen in Australia, South Africa and India.

The effective movement for calendar revision was initiated in England many years ago by Lord Desborough, then president of the great London Chamber of Commerce. As an initial step, Lord Desborough secured the passage by Parliament in 1928 of the Easter Act, providing the necessary legal sanction for the stabilization of Easter whenever the churches were agreed upon the details of this important improvement in the ecclesiastical calendar. Lord Desborough, now nearly 80 years old, is still an advocate of calendar revision, although the burden of leadership has fallen on younger shoulders.

In the report of the Rational Calendar Association, it is stated that the main object of the organization's campaign in England is "to build up a body of authoritative and active opinion in support of a rational reform of the calendar, embodying a fixed Easter and a perpetual 12-month year."

A landmark in the progress of reform in England has been the setting up by the Council of the Royal Statistical Society of a committee of distinguished statisticians to consider calendar reform from the business and statistical point of view. Many Chambers of Commerce throughout England have become enthusiastic supporters of the proposals for a new calendar. Meanwhile, on the side of the churches, advocates of calendar reform include the most important leaders of the Anglican and Free churches, while leadership among English followers of the Roman Catholic faith has been taken by the noted Abbot of Farnborough, whose name appears on the title page of the Latin-English Missal, as editor.

FROM THE MAILBAG

Your suggestion that the calendar be reformed to become a 12-month calendar revised to meet modern requirements, is very interesting and meets with my hearty approval. I will be glad to cooperate in any way possible.—James P. Pope, U. S. Senator from Idaho.

It is a very laudable project. — W. Kynoch, Supt. of Schools, Marysville, Cal.

I hope to see this type of calendar adopted by all countries of the world.—W. A. Myrdal, U. S. Revenue Serv., Fargo, N. D.

We shall study very carefully this important matter.—Alejandro, Bishop of Matagalpa, Nicaragua.

The World Calendar is just the calendar that should be put into effect.—M. M. Mattuch, Ambridge, Pa.

I heartily approve of taking a long-overdue step to bring traditional calendars into line with the present-day facts of human needs.—Rev. F. E. Baker, Louisville, Ky.

This matter, as you are no doubt aware, is one which the International Chamber of Commerce has been pressing for many years and I hope that ultimately we shall be successful.—Arthur Balfour, Capital Steel Works, Sheffield, England.

You are doing a good work.—F. W. McReynolds, Lawyer, Washington, D. C.

I prefer the 12-month plan as the one to which we might most readily adjust ourselves.—Dr. Lacey, Rector, Church of The Redeemer, Brooklyn.

Your Journal is very interesting and highly instructive. — H. Kirn, Foundry Supt., Philadelphia.

I favor the 12-month equal-quarter plan. —Rev. I. F. Bergstresser, Dist. Supt., Evangelical Church, Allentown, Pa.

I have been an enthusiastic calendar reformer for many years. The simplicity of your plan commends it strongly to me and gives promise of achievement without violence to tradition and in a manner quite painless to the habitual fundamentalists. —Walter H. Seely, Swarthmore, Pa.

The plan for a revised 12-month year appeals to me more than one of 13. It would cause less confusion.—Rev. E. G. Black, Flint, Mich.

Have been much interested in your proposal, which seems definitely superior to the present system—or lack of system.—M. R. Eiselen, College of the Pacific, Stockton, Cal.

We received your latest booklet and are very interested in the plan of Calendar Reform. Sincerely we congratulate you on your enterprise.—Mgr. Canuto Jose Reyes y Balladares, Granada, Nicaragua.

Having originally been a 13-month advocate, the arguments in favor of The World Calendar have convinced me that the latter is preferable. — Gano Dunn, Engr., New York.

I am glad to hear that the Chamber of Commerce of the State of New York has voted unanimously for calendar reform along the lines advocated by your Association.—F. H. Fentener van Vlissingen, President International Chamber of Commerce, Utrecht.

Very much interested in your splendid Journal.—J. Welch, Railroad Executive, New York, N. Y.

Keep up the good work.—C. E. Gage, Bur. Agricultural Economics, Washington, D. C.

I am giving you professional support through instruction.—B. A. Sueltz, State Normal School, Cortland, N. Y.

Twelve-month equal-quarter plan is most desirable reform of the calendar ever suggested. — L. L. Benepe, Statistician, State Board of Health, Helena, Mont.

I feel your efforts and purposes are very much worth while.—R. B. King, New York.

Calendar Reform is a unifying principle which will help to unite people.—Mary Macaulay, London, England.

I am keenly interested in the subject, particularly in the World Calendar proposal.—W. R. Gregg, Chief of U. S. Weather Bureau, Washington, D. C.

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M. Martinez de F., Ambassador, Rio de Janeiro.
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Laura Mockridge, Librarian, New York.
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C. C. Whetstone, Public Utilities, Nyack, N. Y.
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Moses Wolinsky, Statistician, New York City.
T. W. Woo, Student, London, England.
M. F. Zatkovsky, Teacher, Philadelphia.
Richard Zeidler, Teacher, San Francisco.

INTERNATIONAL ORGANIZATIONS FOR REFORM OF THE CALENDAR

ARGENTINA: Comite Argentino del Calendario Mundial, Dr. C. D. Perrine, Chairman, Cordoba Observatory, Cordoba.

BELGIUM: Belgian National Committee on Calendar Reform, Prof. P. Stroobant, Secy., Royal Observatory, Brussels.

BOLIVIA: Comite Boliviano del Calendario Mundial, Don Moises Santivanez, Chairman, Biblioteca Nacional, Sucre.

BRAZIL: Comite Brasilero del Calendario Mundial, Captain Radler de Aquino, Chairman, Rua Raul Pompeia No. 133, Rio de Janeiro.

CANADA: Rational Calendar Association, Erland Echlin, Secy., 268 Glenlake Ave., Toronto.

CHILE: Comite Chileno del Calendario Mundial, Padre Valentin Panzarasa, Chairman, Rector del Colegio Patrocinio de San Jose, Bellavista 0550, Santiago.

COLOMBIA: Comite Colombiano del Calendario Mundial, Dr. Eduardo Posada, Chairman, Consulado General de Honduras, Apartado 42, Bogota.

COSTA RICA: Comite Costarricense del Calendario Mundial (Igualmente de Guatemala, Honduras, San Salvador y Nicaragua), Don Teodoro Picado, Chairman, Ministro de Educacion Publica, San Jose.

DENMARK: Danish Calendar Reform Committee, Countess Benika Reventlow, Secy., Brahe Trolleborg, Korinth, Fyen.

ENGLAND: Rational Calendar Association, C. David Stelling, Director, 38 Parliament Street, London.

FRANCE: Bureau d'Etudes pour la Reforme du Calendrier, Paul Louis Hervier, Secy., 5 Rue Bernoulli, Paris.

GERMANY: German National Committee on Calendar Reform, Ministry of the Interior, Berlin—Der Weltbund fur Kalenderreform, Dr. Rudolph Blochmann, Secy., 24 Lorsenstrasse, Kiel.

GREECE: Greek National Committee on Calendar Reform, Prof. S. Plakidis, Secy., Observatory of Athens, Athens.

HUNGARY: Hungarian Committee for Study of Calendar Reform, Dr. Paul Vajda, Secy., 9 Eotos Utca, Budapest.

IRISH FREE STATE: Committee for Calendar Reform, E. K. Eason, Secy., 80 Mid. Abbey St., Dublin.

ITALY: Italian National Committee on Calendar Reform, Prof. Amedeo Giannini, Secy., Via del Seminario, 113, Rome.

MEXICO: Comite Mejicano del Calendario Mundial, Don Joaquin Gallo, Chairman, Observatorio Astronomico Nacional, Tacubaya, D. F.

PANAMA: Comite Panameno del Calendario Mundial, Don Octavio Mendez Pereira, Chairman, Panama.

SOUTH AMERICA: Comite Latino-Americano del Calendario Mundial, Dr. I. Gajardo Reyes, President, Santiago, Chile. This committee directs the activities of national organizations in Argentina, Brazil, Costa Rica, Mexico, Uruguay, Chile, Bolivia, Colombia and Panama.

SPAIN: Spanish Calendar Reform Committee, Dr. Mariano Doporto, Secy., San Sebastian.

SWITZERLAND: Swiss National Committee on Calendar Reform, Prof. Emile Marchand, Secy., 4 Jenatschstrasse, Zurich.

TURKEY: Committee on Calendar Reform, Prof. Ihsan Ali, Secy., Ayas Pasa Nimet Apt. 3, Istanbul.

URUGUAY: Comite Uruguayo del Calendario Mundial (Igualmente del Paraguay), Prof. Alberto Reyes Thevenet, Chairman, Liceo de Ensenanza Secundaria Hector Miranda, Calle Sierra 2268, Montevideo.

INTERNATIONAL CHURCH COMMITTEE

A STANDING committee on calendar reform was created by the Universal Christian Council—international central body of all non-Roman churches—at its annual meeting in Chamby, Switzerland, on August 21.

The committee will be composed of one representative member from each Section of the Council (Orthodox churches, American churches, British churches, European churches). Its first duty will be "to prepare further common action by the churches concerning stabilization of Easter and general reform of the calendar, before the meeting of the League of Nations Commission, to be held in the spring of 1936."

The committee is also authorized to communicate with governments and with any influential groups or personages for the purpose of advancing the cause of calendar reform.

A formal resolution passed by the Council directs the Council's permanent Research Department to continue its studies of calendar reform and to carry on "further educational work" throughout the churches regarding this subject.

SIGNIFICANCE OF ABBOT CABROL'S VISIT TO ROME

By Edward S. Schwegler, D.D.

(See article on page 117)

TO CHURCHMEN in general, and to the Catholic priesthood in particular, the visit of Abbot Cabrol to the Vatican marks an important step in the progress of calendar reform. Certainly a great value must be attached to the initiative displayed in this matter by the renowned Benedictine.

Abbot Cabrol was born in Marseilles in 1855, and was educated at the College of Marseilles. He was professed at the Benedictine Abbey of Solesmes in 1877, and ordained to the priesthood in 1882. For the next eight years he held the post of professor of ecclesiastical history at Solesmes. From 1890 to 1896 he was Prior of Solesmes, and during most of that time was also professor of archaeology and ecclesiastical history at the University of Angers. In 1896 he became the first prior of St. Michael's, Farnborough, and in 1903 Abbot of Farnborough.

Abbot Cabrol has occupied many distinguished posts in his career. He was president of the French section of the Eucharistic Congress in 1908; was entrusted with various scientific missions in France, Italy, Switzerland and Germany by his order, and represented the French Benedictine Congregation at Rome on numerous occasions. He is a Fellow of the Royal Society of Antiquaries and Officier d'Académie, France, 1932.

The list of the Abbot's writings, either in French or in English, is impressive. In French he has written more than a dozen important books on the liturgy and ecclesiastical history, and he is an editor of the great *Dictionnaire d'Archéologie Chrétienne et de la Liturgie*, the eleventh volume of which has only recently appeared. In English, his best known books include *The Mass: Its Doctrine and History*, *Liturgical Prayer*, *Holy Week*, *The Roman Missal*, *Prayer of the Early Christians*, and *Mass of the Western Rites*. Abbot Cabrol has also written many important articles for the *Catholic Encyclopedia*, among them being Breviary, True Cross, Divine Office, Christian Worship, Office of the Dead, etc.

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CONTENTS

Philosophical Society Acts, by C. F. Skinker 161
Obituary Notes 165
Benefits to the Clergy, by Father Valentin Panzarasa 166
Man's Measurement of Time, by Charles Francis Potter 169
Views of Orthodox Church, by Archbishop Chrysostomos 174
As Viewed from China, by Feliciano de Vicinay 178
Business Opinion, by Charles C. Sutter 179
Romance of the Calendar, III, by P. W. Wilson 182
Excerpts and Reviews 186
Current Press Comment 188
Editorial 189
From the Mailbag 190
List of New Members 191
International Organizations 192
Editorial Paragraphs ..... Inside Back Cover

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THE WORLD CALENDAR

All Years Alike
All Quarters Equal

First Quarter

JANUARY

S	M	T	W	T	F	S
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Fourth Quarter

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*YEAR-END DAY, December Y, follows December 30th every year
**LEAP-YEAR DAY, June L, follows June 30th in leap years

The World Calendar is a revision of the present calendar to correct its inequalities and discrepancies. It rearranges the length of the 12 months so that they are regular, making the year divisible into equal halves and quarters in a "*perpetual*" calendar. Every year is the same; every quarter identical.

In this new calendar, each quarter contains exactly three months, 13 weeks, 91 days. Each quarter begins on Sunday and ends on Saturday. The first month in each quarter has 31 days, and the other two 30 days each. Every month has 26 weekdays.

In order to make the calendar perpetual (identical for every year), at the same time retaining astronomical accuracy, the 365th day of the year, called Year-End Day, is an intercalary day placed between December 30th and January first and considered an extra Saturday. (The extra 366th day in leap years, called Leap-Year Day, is intercalated between June 30th and July first. These intercalary or stabilizing days are tabulated as December Y and June L, and would probably be observed as international holidays. January first, New Year's Day, always falls on Sunday.

The revised calendar is balanced in structure, perpetual in form, harmonious in arrangement. It conforms to the solar year of 365.2422 days and to the natural seasons. Besides its advantages in economy and efficiency, it facilitates statistical comparisons, coordinates the different time-periods, and stabilizes religious and secular holidays. As compared with any other proposal for calendar revision, it offers an adjustment in which the transition from the old to the new order can be made without disturbance.

"Our stability is but balance."—Robert Bridges.

ROBERT HAAS

INTERNATIONAL leader of the calendar reform movement under the League of Nations since 1920, M. Haas was a French subject whose career started in the French Ministry of Public Works. At the close of the World War, although he was only 24 years old, he was appointed a full member of the French delegation to the Peace Conference, being assigned to the responsible post of assistant secretary to the Committee on Ports, Railways and Communications. He became part of the permanent staff of the League of Nations immediately upon its formation, and was virtually the creator of the Section on Communications and Transit, acting as "Chief of Section" from 1920 to 1931, and as Director and Secretary-General from 1931 until his death.

It was largely through his initiative and guidance that the League, at the instance of the International Chamber of Commerce, made calendar reform a permanent objective in its program, assigning to M. Haas's department the task of study and promotion. In 1923 M. Haas set up a "Special Committee of Enquiry into Calendar Reform," and the exhaustive studies made by this committee led eventually, nine years later, to the convening of the 1931 Conference, at which delegates of 44 nations met and solemnly approved, in principle, of a reform of the calendar. During the eight-day sessions of this Conference, M. Haas's untiring activity, skilful leadership and knowledge of procedure guided the delegates and facilitated the progress of the meetings. The final report of the Conference was based on a draft prepared by M. Haas.

M. Haas visited America and conferred with representatives of The World Calendar Association in 1935 regarding the quadrennial meeting of the Commission on Communications and Transit which is to be held in the spring of 1936. His death on Nov. 4, from an embolism, was sudden and occurred in the midst of his preparations for next year's international conference.

By his death Calendar Reform loses a valued guide and the League of Nations a servant whose knowledge and experience it will be difficult to replace. Robert Haas was an ideal League official. The sympathetic vigor of his mind, his knowledge of languages and his quickness in sifting the essential from the inessential, rendered him a tower of strength at the polyglot discussions of the League, while his accessibility, his courtesy and his ready understanding impressed themselves upon all the visitors from many countries with whom he was brought into contact.



ROBERT HAAS

Secretary-General of the Communications and Transit Section of the League of Nations
Died Nov. 4, 1935

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PHILOSOPHICAL SOCIETY ACTS

By C. F. SKINKER

Executive Secretary, American Philosophical Society

The American Philosophical Society, which held its convention in Philadelphia in October, was founded in 1727 for the purpose of "promoting useful knowledge." Its present membership of 500 is selected from among men of the greatest eminence in science, letters and the liberal arts. At its October meeting, it adopted the following resolutions regarding calendar reform:

"RESOLVED, that the American Philosophical Society, having considered the two principal proposals for calendar reform mentioned in the League of Nations report of 1931, hereby expresses its preference for the 12-month plan known as The World Calendar; and

"RESOLVED, that the Society would welcome the adoption of this 12-month plan, provided a substantially unanimous agreement among the civilized peoples of the world is secured in favor of the change."

The considerations which led the Society to these conclusions are briefly summarized in the following report.

TEN or fifteen years ago, any reform of the calendar might have seemed wholly impracticable. But since the League of Nations has taken up the matter—first through its Committee of Enquiry in 1926, and later through its General Conference of 1931, attended by representatives of 44 nations—the question has become one of immediate practical importance.

The League very wisely took no definite action in 1931, regarding its work up to that time as of a preparatory and educational nature. But since 1931, national organizations in many countries (stimulated and encouraged by the attitude of the League) have continued this program

of education so successfully that informed public opinion may now be said to be generally conscious of the defects of the present calendar and widely interested in its improvement. (A comprehensive and impartial historical account of the whole subject will be found in a recent paper by Professor A. E. Kennelly: "Proposed Reforms of the Gregorian Calendar," Proceedings of the American Philosophical Society, vol. 75, pp. 71-110, 1935. Abstract published in Journal of Calendar Reform, October, 1935.)

It is understood that the League of Nations is prepared to place the question of calendar reform on its agenda for 1936 provided at least two important nations so request.

The principal proposals mentioned in the League of Nations Report of 1931 are the "13-month plan" and the "12-month plan."

The 13-month plan is the plan sponsored in this country by the late Mr. George Eastman and actively promoted by the International Fixed Calendar League (1 Regent Street, London, England, or 343 State Street, Rochester, New York). According to this plan, a thirteenth month, to be called "Sol," would be inserted between June and July, and every month would begin on a Sunday and contain exactly 28 days, or four weeks. An extra day called "Year-Day" (to be dated December 29 without week day name) would be inserted at the end of every year; and an extra day called "Leap-Day" (to be dated June 29 without week day name) would be inserted between the sixth and seventh months in every leap year.

The 12-month plan is the plan known in this country as "The World Calendar" and advocated by The World Calendar Association (485 Madison Avenue, New York City; organized in 1930; Miss Elisabeth Achelis, President). According to this plan, the year would contain twelve months divided into four exactly equal quarters, each quarter consisting of three months of 31, 30, and 30 days. Each quarter would begin on a Sunday, and every month would contain the same number of week days (26). An extra day called "Year-End Day" (to be considered as an extra Saturday and dated either "December Y" or, as many prefer, "December 31") would be inserted at the end of every year; and an extra day called "Leap-Year Day" (to be considered as an extra Saturday and dated either "June L" or, as many prefer, "June 31") would be inserted in the middle of every leap year. (A leap year is defined, as usual, as any year which is divisible by 4, excepting such centurial years as are not divisible by 400.)

DISSATISFACTION WITH THE PRESENT CALENDAR

The numerous disadvantages of the present calendar—for example, the difficulty of adjusting industrial and educational schedules to the vagaries of wandering holidays, and the difficulty of making satisfactory

statistical comparisons between one period and another—are too familiar to require cataloging here. The important point to note is that the general dissatisfaction with the present calendar is now becoming vocal. Vigorous resolutions are being adopted by a rapidly increasing number of important organizations. We mention only two of the most recent.

In October, 1934, a resolution prepared under the leadership of Bishop William T. Manning of New York, emphatically condemning the present calendar and urging the adoption of The World Calendar, was unanimously adopted by the General Convention of the Protestant Episcopal Church. (This resolution emphasizes also the importance of the stabilization of Easter in connection with the new calendar.)

On April 4, 1935, equally strong resolutions in favor of The World Calendar were unanimously adopted by the Chamber of Commerce of the State of New York.

DIMINISHING IMPORTANCE OF THE 13-MONTH PLAN

Until recent years, the only practical means of expressing dissatisfaction with the existing calendar was by supporting the 13-month plan.

The 13-month plan (which had been devised as far back as 1888 by a Canadian, Mr. Moses B. Cotsworth) secured an extensive following under the active sponsorship of Mr. Eastman, and when the League Conference met in 1931, the Canadian and Yugoslavian delegates (officially) and the American delegate (unofficially) were definitely committed to its support.

At this conference, however, the arithmetical disadvantages of the number 13, and the almost insuperable difficulty of accomplishing so radical a change as the introduction of a 13th month into the year, were so obvious that determined opposition was immediately raised against the plan. The number of delegates definitely committed to either the 13-month plan or the 12-month plan was comparatively small. But among those who were not ready to commit themselves in favor of either plan opposition to the 13-month plan was vigorous and widespread. For example, Italy, Japan, Belgium, the Irish Free State, the Netherlands, and Sweden were definitely opposed to any 13-month plan. No such opposition developed against the 12-month plan.

Since 1931, it has become increasingly clear that the 13-month plan has no possible chance of winning the necessary world-wide support. (The argument most frequently presented in favor of the 13-month plan, namely, that many business firms have adopted a four-week period for their internal accounting, seems to have little bearing on the question of revising the civil calendar.)

It should be stated, however, that the agitation in favor of the 13-month plan, although it failed to suggest a successful remedy, was nevertheless

of great service in calling public attention to the defects of the present calendar, and to the need of reform. Many persons who originally favored the 13-month plan, at the time when it was the only plan available, are now supporting the 12-month plan.

ADVANTAGES OF THE 12-MONTH PLAN

The 12-month plan, or The World Calendar, appears to remove the objectionable irregularities of the present calendar without calling for any depressing dead level of uniformity.

Since any given date would always fall on the same day of the week, all such clumsy circumlocutions as "the Monday after the first Sunday in September," etc., would be entirely done away with. Except for Leap-Year Day, the calendar would require no change from year to year.

The fixation of holidays on permanent dates would be of special advantage to those who have to arrange educational and industrial schedules, which are now so irregular and confusing. National holidays would doubtless be arranged so as to fall permanently on the week day which in each case is best suited to the purpose, the month day being unchanged from year to year.

For statistical purposes, the comparison between any period in one year and the corresponding period in any other year would be greatly facilitated. Each quarter (which is commercially and financially an important unit) would be exactly like every other quarter; and every month would contain exactly 26 week days. It is interesting to note that in reply to a questionnaire sent to members of the American Statistical Association in 1934, when the 13-month plan was more prominent than it is at present, an overwhelming proportion were in favor of calendar reform, and over 70 per cent were in favor of the 12-month plan as against the 13-month plan.

The vast amount of statistical data which has been accumulated throughout the world would retain its value unimpaired after the adoption of The World Calendar, and the value of future statistics would be greatly enhanced.

RELIGIOUS QUESTIONS

Certain Christian denominations and certain groups of Jews are strongly opposed to both the 13-month and 12-month plans on account of the intercalary days (Year-End Day and Leap-Year Day), which are thought to disturb the succession of the seven-day week. A logical answer to this objection would seem to be supplied by The World Calendar device of calling these days "extra Saturdays." A "double Saturday" is already familiar to every traveler who has crossed the "date line" in the Pacific Ocean from west to east. He goes to bed, say, on Saturday, May 4; when he wakes up the next day it is still Saturday, May 4. Of course, any other

day of the week may be similarly "doubled." Conversely, when traveling from east to west, a day is "lost" on crossing the date line. Both of these events disrupt the sequence of the seven-day week, but neither of them has been brought up as an argument against the date line.

A much more important religious question is the movement for the stabilization of Easter, which is making rapid progress throughout the Christian world. While the Easter question is not a necessary part of the question of calendar reform, and must, of course, be settled by religious authorities, the two questions are closely related, and it is to be hoped that both will be settled together.

EASE OF TRANSITION TO THE WORLD CALENDAR

An important practical advantage of The World Calendar is the ease with which the transition from the present system to the new system could be accomplished.

The confusion between "Old Style" and "New Style" which accompanied the last reform of the calendar (by Pope Gregory XIII in 1582) was caused solely by the necessity of dropping ten days from the calendar in the transition year.

No such confusion would be caused by the adoption of The World Calendar today. The shifts required are so slight that little trouble, either legal or social, would result. The advantages of securing a perpetual calendar seem well worth what little inconvenience might be involved.

The change should of course be made in a year in which January 1st is a Sunday. Such a year occurs in 1939, but not again until 1950.

OBITUARY NOTES

FRED R. PETERS, Editor of the Evansville, Ohio, Press, died June 16 at the age of 60 years. An early member of The World Calendar Association, he was influential in bringing the reform to the attention of the public through his newspaper.

PROF. EDWARD S. DANA, leading American geologist, died in New Haven on June 17 at the age of 85 years. For 43 years a member of the Yale faculty, chairman of the Board of the Peabody Museum and Editor of the "American Journal of Science," he had been an active advocate of calendar reform for many years.

WILLEM WESTERMAN, one of the foremost bankers of Holland, died recently at the age of 71 in The Hague, Holland. He was chairman of the Board of the Holland-American Line and a member of The World Calendar Association since 1934.

OTHER deaths among the membership of The World Calendar Association during the past year included: Dr. Voislav Marinkovitch, former Premier of Yugoslavia; Prof. G. H. Hamilton, astronomer of the Harvard Observatory at Kingston, Jamaica; Commander Alvaro Ribeiro, Director of Radio Service of the Portugese Navy; Rev. Almon A. Jaynes, Episcopal Archdeacon of Central New York; A. J. Hazlett, publisher of Inland Oil Index and former member of the Ohio legislature; Frank B. Anderson, chairman of the Bank of California; and William C. Fletcher, secretary of the Metropolitan Life Insurance Company of New York.

BENEFITS TO THE CLERGY

By The Most Reverend Valentin Panzarasa

Rector del Colegio Patrocinio de San Jose, Bellavista, Santiago, Chile

A NATURAL premise to any statement by a Catholic priest on calendar reform will be that an ultimate decision must rest with the Head of the Church. But on the supposition that the Vatican should eventually accept some form of a permanent calendar—and more particularly, the very popular plan advocated by The World Calendar Association—one can see from the standpoint of the Catholic clergy a number of decided advantages in the proposed reform.

As things now stand, there are really two series of days in the church calendar: one invariable and attached to definite dates (*Proprium de Sanctis,* Proper of the Saints), and the other varying with the date of Easter (*Proprium de Tempore,* Proper of the Time). In a new calendar, with Easter fixed on an unchangeable date, these two series of feasts could be combined and stabilized, with the result that there would be only one, and that an invariable, series of feasts, including both the present movable days and the fixed days.

Practically, this would mean a great simplification both of the Missal, as used for the saying of Mass, and of the Breviary, which is followed for the recitation of the Divine Office. As things are now, the Missal has three principal parts: the Proper of the Time, the Proper of the Saints, and the main, invariable portion of every Mass which is called the Canon (*Canon Missae*). The latter, being used most, is placed in a convenient place toward the center of the Missal: actually, it is to be found at present between the Mass for Holy Saturday and that for Easter Sunday.

When *Mass* is said, it is necessary usually to turn all three portions of the Missal a number of times as the sacred ceremony proceeds; and when there is a combination of ecclesiastical feasts the process of referring to different parts of the book becomes rather involved. Thus, in saying the Mass of the Venerable Bede on May 27, 1935, which is at the same time a Rogation day and the feast of St. John I, Pope and Martyr, it is necessary to start in the Proper of the Saints, then go to the Proper of the Time for a commemoration of the Rogation day, then turn back to the Proper of the Saints for the commemoration of St. John, then turn to the Canon, and so on to the end of the Mass, the last gospel of which comes from the Proper of the Time.

With a permanent calendar these matters would be greatly simplified. It would be necessary to turn to only one place in the Missal apart from the Canon: in the present instance (supposing the liturgical picture for May 27, 1935, to become part of a permanent calendar), to that portion of the

Missal containing the Mass or commemoration of the Venerable Bede and of St. John and of the Rogation day all in one place. With the supposition of a permanent calendar, the Canon could be kept in the same place it holds at present, dividing the offices of the Missal between Holy Saturday and Easter: then the first part of the Missal would contain the combined offices of feasts, Sundays and Saints up to Easter, the second those after Easter.

In similar fashion, the *Breviary* would be simplified and shortened. As it is, the Breviary appears usually in four parts and as many distinct volumes: Winter, Spring, Summer, Autumn. Each of these parts contains three subdivisions, as is the case with the Missal: the Psalter, or portion that is repeated week after week for the respective weekdays, the Proper of the Time, and the Proper of the Saints. All this might, of course, be printed in one volume, as is the case with the Missal: and then it would be necessary to print the Psalter only once. But the result would be a book so bulky as to be highly inconvenient, and the present division by seasons is the result; although even these volumes as at present constituted are of a notable size. This latter fact is accounted for to some extent by the circumstance that each part of the present Breviary must contain the variable feasts that may be commemorated only some of the time in its respective season. The result is a notable amount of overlapping in each of the Breviary volumes.

With a new order of things there would be no need of repetitions, since the offices of the four seasons would not vary from year to year. Indeed, it might even be possible to print the Breviary conveniently in two volumes. At any rate, the constant annoyance of turning over pages and looking for widely scattered offices would be much reduced, to the notable advantage of the individual priest's attention and devotion.

A further simplification as regards the liturgical books would be that, the relation of the moon to the celebration of Easter being eliminated, we should automatically do away with the numerous astronomical and historical data—quite difficult to understand, by the way—which are now to be found at the beginning of the Breviary, and which give information about the Golden Number, the Epacts, the Dominical Letter, etc.

In the same way, all the rules and tables for the concurrences of feasts would no longer be necessary.

These matters, which take up the major portion of the introduction to the Breviary, could be replaced by a detailed history of the Divine Office and a treatise on the great importance of its recitation for every priest and for the whole ecclesiastical world.

There would also ensue from calendar fixation another very advantageous simplification as regards the Church's liturgy. At the present time it is necessary to draw up a new ecclesiastical calendar every year as a guide to the Divine Office and the Sacrifice of the Mass. With the reform, one calendar would be good for several years, or, indeed, for all time. This

would save priests the trouble of securing new calendars at the beginning of every year and of having to wait when their printings are delayed.

As one thinks the whole matter over, particular angles of it will appeal to him. Thus, the Sundays after Pentecost in the present Breviary have their offices divided into two parts. One part belongs to the given Sunday no matter on what date the latter falls; the other part belongs to the Sunday in accordance with the actual date itself. With the new reform these parts would be combined and the offices for the Sundays after Pentecost would have the same unity as those after Easter.

Again, with the new calendar the extraordinary offices and the vigils of all solemn feasts would be forever fixed on their respective dates, doing away with the doubts occurring about this matter when the vigil or fast day falls on abolished feast days. And the fact that every saint's feast would fall on the same day of the week each year would be an appreciable advantage in home life. The commemoration of any solemn family event (for instance, a first Communion, a first Holy Mass) on a given feast or saint's day would always fall on the day of the week it had originally happened.

As regards scholastic matters, the fixing of Easter would be a great help because the school year would thereby be divided into well-defined parts, and school hours, study subjects, etc., could be more easily and regularly determined.

There are, of course, from the religious standpoint, some objections that may be brought against the idea of a fixed calendar; but these are easily answered.

It may be said, for instance, that with the proposed reform there would be lost the ancient Christian and Hebrew tradition of celebrating Easter at such and such a time, when it is full moon, in such a relation to the equinox, etc. True, there will no longer be the traditional correspondence of time and season in certain ways; but the feast can be celebrated in another way, just as other events in the sacred liturgy are commemorated; that is to say, by a set, definite date. And the advantages of a change in the calendar are so evident that we should be willing to sacrifice one or the other detail of historical association.

Others might object that, with Easter fixed, a certain monotony would be produced in the seasons and feasts of the Church, because every year on the same days we should have the same service, the same Mass, etc. But all this is somewhat relative. The "monotony" disappears when the prayers and pious practices, periodically repeated, are thoughtfully considered in their true significance and value. Each one of them is so full of ideas and lessons about faith, charity, Christian virtue, the lives of our Lord Jesus Christ and the saints, that every day one can find in the Church's liturgy an inexhaustible source of grace, of unction, of inner life. This certainly does away with any possible suggestion of monotony.

But if the feast of Easter is fixed, will not the feasts of many saints be eliminated, because they would be eclipsed by other feasts of greater importance falling on the same day? One may simply reply that the ecclesiastical authorities have very easy means of avoiding this inconvenience. They could very well set down in the Missal and the Breviary the Mass and Office of both solemnities on the same day, and by a rotary system, have one of the concurring feasts celebrated one year and the other the next year. Thus would just prominence be given to all feasts and an element of variety be introduced.

With all due respect to competent ecclesiastical authority, one might at this point make one or the other suggestion on the assumption that the proposed calendar were accepted by the Church. For instance, certain feasts could be fixed according to a better chronology. Take the Slaughter of the Innocents. This event certainly took place after the Epiphany, and we now commemorate it before that day. The Presentation of the Child Jesus in the temple occurred before the Epiphany, according to the opinion of the best biblical authorities, and we celebrate it in opposite order. Also, some Sunday gospels could be changed on account of their being too difficult for the common people.

However, such questions must be left to the decision of the proper ecclesiastical authorities. But concerning the general advantages of a fixed calendar there can be no doubt. Every priest who studies the problem cannot but confess that the reform of our calendar would bring many pronounced benefits to the whole Christian world.

MAN'S MEASUREMENT OF TIME

By Charles Francis Potter

RECENTLY two men in a New York office building, seated only fifty feet apart, talked to each other around the world in the first two-way globe-encircling conversation. This epochal telephone talk occurred at half-past nine in the forenoon. That is, it was that time in New York, but it was half-past two in the afternoon in London and ten o'clock at night in Java. One voice went east into tomorrow, and one went west into yesterday. Then both came back into today. These men were talking yesterday, today and tomorrow at practically the same instant, for it took less than one-fifth of a second for their voices to go around the world. It was the same time all the time and yet they talked in three days at once. It is evident in the light of these facts that time is a relative matter, and that our measurements of time have their limitations.

We have divided time into years, months, weeks and days, and have subdivided the day into hours, minutes, and seconds. These time-divisions are all based on astronomical facts. A year is the time it takes the earth to pass around the sun. A month is, approximately, the time of the revolution of the moon. A day is the time it takes the earth to turn completely round on its axis. The origin of the week is obscure, but the seven-day period may have been derived from the phases of the moon or from the supposed number of planets known to early observers.

The essence of time is motion. When you are asked what time it is, you arrest time for a moment and give an answer in agreement with the system of time measurement to which you and your questioner are accustomed, but by the time you have given your answer, it is already incorrect. I smile when I see a sign in a window over a clock reading "Correct Time." The sign may even specify "Eastern Standard Time," or "Daylight Saving Time," but I know that the particular time indicated by that particular timepiece is simply the approximately right time according to a certain understood arrangement.

The United States and Canada, for instance, have been divided into certain zones, in each of which a synchronized time has been agreed upon. There are several belts of time, Atlantic, Eastern, Central, Mountain, and Pacific, each an hour earlier in the order named. The time used in each of these zones is not "correct sun time" except in a narrow line in the approximate center of each of these belts. At the western edge of each zone, the time used is really almost a half-hour fast, and at the eastern edge, almost a half-hour slow.

A few decades ago, before the railroads introduced a faster system of travel and made time important, each American community had its

own time. Even when the railroads came, each railroad had its own time. In 1878, a Scotch Canadian named Sandford Fleming proposed a scheme for ending the confusion which had, of course, resulted. He suggested dividing the earth into 24 sections, since the earth took 24 hours to revolve. These sections were to start from Greenwich, a borough of London, England, chosen because a Royal Astronomical Observatory had there existed since 1675, from which time-signals were customarily sent. East and west from Greenwich, each 15 degrees of longitude wide, the 24 zones were to stretch around the world, and in each zone the clocks were to be set exactly alike. As one passed west from Greenwich into the next zone, clocks were to be set one hour earlier, and east, one hour slower.

This proposition of Sandford Fleming met with considerable opposition. The old local time was defended as "God's Time," just as some farmers have in our day opposed Daylight Saving Time and have insisted that God's Time is Standard Time, the Sandford Fleming Time, which, less than 60 years ago, their fathers opposed as the Devil's Time.

But Standard Time was gradually accepted, because it afforded advantages which could not be ignored in the new mechanical era of steam and gasoline. And we have accepted Daylight Saving Time, or, as they call it in England, Summer Time, whereby we amend Standard Time for four months each summer by adopting temporarily the time of the next Standard zone to the east, thereby saving ourselves expense in electric light, for one thing. By setting our clocks ahead one hour in the spring, theoretically losing an hour of our lives, we gain an extra hour of daylight. In the fall, when it doesn't matter, we take the hour back. The value of such an arrangement has become apparent through use, and the opposition to the practice has grown less each year. Moreover, the success of this experiment in "tampering with the clock" has made us less hostile to so-called "tampering with the calendar."

Gradually we have come to see that, practically, time is a matter of arrangement, and that measurements of time are to be determined by common consent for common convenience. The view that time is something static, and that "time and tide wait for no man," is seen to be a superstition. Within certain limits, man can manipulate time to his own advantage. All its measurements he has devised for his own use, and it is he that has invented machines for its measuring.

First he had very crude hour-glasses, clepsydras, and sun-dials. It was not until 996 A.D. that the first clock was invented by Pope Sylvester the Second. Even in the 13th and 14th centuries the clocks in castles and cathedral towers were still wonders to the common folk.

Clocks are clever mechanical devices which imitate the rotation of the earth. If you had a clock whose hour-hand revolved once in 24 hours instead of twice, and set it up so that its face was in a plane parallel

with the equator, with the right side of the clock up, and pointed the hour hand at a certain star, that hand would follow the star through the rest of the night, all day, and still be pointing to it the next night when it appeared in the evening sky. If it were a sidereal clock, it would keep it up indefinitely, but an ordinary clock would lose four minutes a day.

French, German, and English clockmakers vied with each other to make their clocks complete time-measuring devices. They were not content to have the clock merely strike the hours, and record hours and minutes on its dial. Complicated mechanisms were soon developed which indicated the half-hour and the quarter-hour, and recorded even the passing of seconds by an additional hand on the dial. Still other hands with their regulating cogs showed the phases of the moon, the position of the sun, the day of the week, and the day of the month. The uneven length of the various months, however, made it necessary for the clock-owner to reset the day-of-the-month hand at the end of most months. The more a clock tried to show, the more likely it was to get "out of kilter." Consequently the complicated clocks fell into disfavor.

When a man wished to know anything beyond the minute and hour, he resorted to a calendar or almanac. At first the churches had charge of the calendar, for the church year regulated the secular year. But the keeping of state records and the rise of commercial houses with their dated paper, interest charges, and yearly accounts soon required state and business calendars in addition to the church's records. With the rise of the idea of advertising, certain business houses took on the responsibility of keeping their customers informed about the passage of time and the approach of maturing notes by issuing yearly calendars of greater or less attractiveness, bearing the imprint and, later, modest statements of the prestige of the house and the scope of its business. From these simple beginnings developed the elaborate advertising calendars, pocket date books, and diaries, supplied by commercial firms and banking houses to their customers. A calendar of some sort was necessary for everybody, because every year was different from the preceding year.

Meanwhile, in the astronomical observatories and physics laboratories, the measurement of time had become an exact and precise science. Careful observations were taken of the yearly, monthly, and daily positions of certain stars, of the moon, and of the sun. Research determined, to the 100,000th fraction, the length of the year and of the month in days. It became evident, as these careful studies continued, that there was no common denominator of even units between days, months and years.

A day is, of course, the time occupied in the revolution of the earth. But it seems that the exact length of the day varies accordingly as you take observations from the sun, the moon, or the stars. Originally, a day was the time it was light, but that varied so much that a day became the

time between the morning appearances of the sun, so two meridian passages of the sun came to constitute a day. But the sun has an eastward motion, and the solar day is four minutes, approximately, longer than the sidereal day. Moreover, the length of the solar day is constantly fluctuating, so the astronomers have to imagine a regular solar day, which they call a mean solar day, and the time marked by this imaginary sun is called "mean solar time." The sun dial shows apparent solar time, but the clocks and watches show mean solar time. The sun is always fast or slow.

It is the mean solar day which is divided into 24 hours of 60 minutes each. The sidereal day, which is more nearly accurate, is 23 hours 56 minutes and four seconds of mean solar time long. To be accurate, astronomers divide the sidereal day into 24 hours which are shorter than solar hours. In a year of 365 solar or civil days, there are 366 sidereal days. And the civil or legal day runs from midnight to midnight, while the church or ecclesiastical day runs from sunset to sunset, which complicates matters still further. Then there are court days, law days, and stock exchange days. When, forsooth, is a day a day?

The month is still more complicated. There are lunar months, anomalistic months, sidereal months, tropical months, nodical or draconic months, and solar months, to say nothing of interest months. Lunar months are figured as the time between new moons. Anomalistic months are the elapsed time taken by the moon in passing from one perigee to the next. (A perigee is the time when the moon is nearest the earth.) The sidereal month is the mean time it takes for the moon to make the circuit among the stars. The tropical month is the time it takes for the moon to traverse 360 degrees of longitude. The nodical or draconic month is the mean time it takes for the moon to pass from one rising node to the next. (The node is where the orbit of the moon intersects the orbit of the earth.) The solar month is just one-twelfth of a tropical year. No one of these months is of the same length as any other. By careful astronomical observations it has been determined that the exact lengths of these various months is as follows: Synodic, 29.53059 days; anomalistic, 27.55460 days; sidereal, 27.32166 days; tropical, 27.32156 days; nodical, 27.21222 days, and solar, 30.43685 days. An interest month is exactly 30 days. How long, forsooth, is a month?

The year varies similarly. A tropical year, which is the year adopted by the chronologists and most calendarists, is the time taken by the sun in passing between two successive vernal equinoxes. It is exactly 365 days, five hours, 48 minutes and 46 seconds. The sidereal year is longer, for it is the actual time taken by the earth in its orbital revolution, namely, 365 days, six hours, nine minutes and nine and one-half seconds, for it is longer on account of the procession of the equinoxes themselves. The anomalistic year is still longer, because the earth's perihelion itself moves. (The perihelion is the point of the orbit of the earth nearest the sun, which varies from year to year.) Now, the anomalistic year is the time between the successive returns of the earth to the perihelion point, and, due to the drag, its length is 365 days six hours 13 minutes and 53 seconds. The anomalistic year is, therefore, four minutes and about 43 seconds longer than the sidereal year.

These variations seem insignificant, since they are matters of only minutes and seconds, but in the course of a century they count up, so it is important in exact measurement to ask, What do you mean by a year? What kind of year is it?

The measuring of time is, obviously, a relative matter. We must frequently adopt a compromise between what has been and what should be. No radical changes can be accomplished immediately. The calendar which we are using at present is, itself, a compromise, an improvement

upon what went before, brought about in spite of opposition. If we can improve it still more, this is highly desirable.

As time passes, we discover ways by which we can eliminate some of the previous mistakes of time measurement. If we have, in the past, decided that some ways of measuring time are inaccurate, and have improved them, to the benefit of all concerned, we can always, in the light of new knowledge, revise those ways, for our common good.

The proposed World Calendar is simply a further revision of the tentative agreement of some centuries ago. We live and learn, as the old proverb has it. If we have discovered that there are ways by which we can improve our calendar, well and good. There is nothing unusual or revolutionary about changing the calendar. It has been changed time and again. Julius Caesar, with the aid of the Egyptian astronomer Sosigenes, made a great improvement. Pope Gregory, with the help of Lilius and Clavius, changed it again. Why should not their work be continued?

It is over three and a half centuries since Pope Gregory dropped 10 days in order to make the civil calendar agree with the reckonings of astronomers, and in that time we have learned much. It is nearly 2,000 years since Julius Caesar gave us our present calendar, for Gregory's change was a minor one. We are now using the calendar of Julius Caesar, to all intents and purposes. Why use the calendar of two millenia ago when we have progressed so far in other departments of human life?

Is there any reason whatsoever for our having 31 days in July and 31 in August and only 28 in February, thereby upsetting all our monthly computations every year? We are simply catering to the personal egotism of two Roman emperors who lived and died many centuries ago. Their silly selfishness was written into the calendar, and no generation since has had the initiative and good sense to even up the months. This present generation may be progressive and rational enough to adopt The World Calendar and thereby right a wrong and eliminate an inconvenience which has troubled 60 generations.

Time was made for man and by man, and not man for time. Through the scientific progress of the last few generations man is now in possession of all the information he needs to set up an accurate measurement, tabulation, and calendar of time. Because of his own inertia and his disinclination to abandon the familiar, he still uses a calendar inherited from a prescientific age. The proponents of The World Calendar offer a sane, scientific, modern way of reckoning the days and months, with every quarter-year the same, and every year the same. Leading thinkers of our day have endorsed it. It is high time this desirable new calendar was adopted. In 1939, January first comes on Sunday, as it does every year in The World Calendar. That date would be an excellent time to adopt the new system.

VIEWS OF ORTHODOX CHURCH

By Archbishop Chrysostomos of Athens

(Abstracted by C. D. Morris)

CALENDAR REFORM came sharply to the attention of the Eastern Orthodox Church in 1919, when a special commission was appointed by the Holy Synod, consisting of the Archbishop Germanos, the Metropolitan Ambrosius, and the university professors Chrysostomos Papadopoulos (now Archbishop of Athens), Demetrius Eginitis and Emmanuel Zolota. At this time the Julian calendar was still generally in use throughout the Orthodox countries. The Commission reported as follows:

"We consider that a reform of the Julian calendar, being unobjectionable on dogmatic or canonical grounds, might be carried out, on condition that the change shall take the form, not of adhesion to the Gregorian calendar, but of the preparation of a new calendar, more scientifically accurate and not suffering from the defects of the two calendars now in use, Julian and Gregorian."

This decision was based on information that the League of Nations was about to propose a more perfect calendar than either the Julian or the Gregorian, and it was to this proposed new calendar that the Commission referred, hoping that the plans of the League would move forward speedily.

The Commission's report was later approved and adopted by the Holy Synod of the Church of Greece, which added a suggestion for an interim arrangement, as follows: "If the State, not hoping for a speedy completion of the League's new scientific calendar, and feeling the increasing difficulties arising from the fact that neighboring states have adopted the Gregorian calendar, thinks it impossible to remain in the present situation, it is at liberty to adopt the Gregorian or European calendar, while the Church retains the Julian system until the institution of the League's new scientific calendar."

Meanwhile the Ecumenical Patriarchate in Constantinople and the other churches, particularly those of Russia, Serbia and Rumania, had come to regard the reform of the calendar as an urgent ecclesiastical and social necessity. The attitude of the Ecumenical Patriarchate was made clear in a report on September 1, 1920, which said:

"A definite revision of the calendar is imperative, one which does not conflict with dogmas or canons. This can be attained either by the working out of a more perfect calendar or by the adoption of the most perfect of those now in existence. It is imperative, however, that without waiting for this, the Church should arrive at a provisional arrangement."

Previously, however, the Gregorian calendar had been introduced for civil use in certain Balkan states and partially in the crumbling Russian

Empire. The Russian Church had entered upon a period of indescribable vicissitudes. At the end of 1917 it had given permission to the provinces of Finland, now politically separated from Russia, to apply the western calendar sectionally where desired by the people. The autonomous Church of Finland was the first Orthodox church to adopt the western calendar. The Esthonian church followed. For Russia and the other Orthodox areas, great difficulties arose, through the absence of regular relations between the great patriarchates. In Greece a new Commission studied the question, its membership including, besides Professors Chrysostomos Papadopoulos and Eginitis, various government representatives and Professor A. Alivisatos.

The Ecumenical Patriarch in Constantinople communicated a circular letter to the Churches, stating that the Neareastern governments, which had hitherto waited for the League of Nations to achieve a new and better calendar than either the Julian or Gregorian, were one after another going over to the European calendar. The letter continued:

"Although this action by government has left the festivals of the Church untouched, it is nevertheless obvious that no little difficulty is created in everyday life by the use of two calendars side by side. For this reason, petitions reach the Church from all quarters that a way be found of bringing the individual church member into harmony with himself as a citizen and a Christian. It is also important from the viewpoint of Christian unity that all those who call upon the name of the Lord shall celebrate his birth and resurrection on the same day. Still another reason is urgent: in America, two million Orthodox Christians either do not keep the feasts of their own Church or keep them with an obvious prejudice to their material interests, and amelioration of this situation imposes itself as a sacred duty upon the Church as pastor of the flock."

In 1923, a Panorthodox Congress convened in Constantinople under the presidency of the Patriarch Meletius, to discuss the calendar situation. It declared that removal of the conflict between religious and civil calendars was "an indispensable necessity," and ruled definitely that "no canonical obstacle exists to the reform of the ecclesiastical calendar." Indicating that their proposal was an interim one, the Congress stated in its final resolutions that "the proposed change in the Julian calendar shall not constitute an obstacle to any later amendment of the same which may be accepted by all the Christian churches."

Then it proceeded to adopt another set of resolutions, dealing with the more general question of calendar reform. After stating that a scientific general revision of the calendar was being considered by the League of Nations and by governments, these resolutions carefully outlined the conditions under which the Orthodox Church would be able to accept a new and more perfect calendar, as follows:

"This Congress requests the Ecumenical Patriarchate, after previous

agreement with the various Orthodox churches, to signify to the League of Nations that the Church is quite prepared to accept the new calendar which is being devised, provided the same is accepted by all the Christian churches. While the Orthodox Church would prefer a calendar preserving the continuity of the week, it is nevertheless not bound by such a preference if the other Churches agree to acceptance of a new calendar involving interruption of this continuity. Moreover, if the common consent of the Christian Churches is obtained, the Orthodox Church is prepared to pronounce in favor of the stabilization of the festival of Easter on a day which must always be Sunday, but a desire is expressed that such an immovable Easter shall correspond to the actual Sunday of Our Lord's resurrection, determined by scientific methods."

The latter resolutions had in view the League of Nation's proposals for a new and more perfect World Calendar, while the first set of resolutions furnished an interim solution of the immediate calendar question in the Orthodox countries. Unfortunately, the Patriarchs of the Levant, who had not participated in the Congress, later rejected all its resolutions en masse, more on general grounds of *competence* than on their merits. If the Congress had confined itself to the calendar question only, the opposition to it would not have been what it was. The Patriarch of Alexandria admitted there was no dogmatic or canonical objection to a reform of the calendar, but was of the opinion that only an Ecumenical Council could legislate in this matter. The Patriarch of Jerusalem put forward pilgrimage difficulties and the dangers of proselytism among the Orthodox flock in Palestine. The Patriarch of Antioch shared the views of Alexandria as to the sole competency of an Ecumenical Council. All three of these patriarchs considered the question, properly speaking, in a purely theoretical manner, since no change in the civil calendar had taken place in their countries and consequently no necessity had arisen for adjustment to a different calendar. They persisted in calling for an Ecumenical Council, although it was agreed on all hands that it was physically impossible to convene such a body.

So matters went on for a year or more. The progress of negotiations was summed up in a statement by the Ecumenical Patriarchate:

"Careful and impartial study leads to the conclusion that none of the autocephalous churches rejects a change in the calendar. Difference of opinion among them is due to different causes. With some it is the incompetence of the Panorthodox Congress to pronounce judgment and legislate the reform, with others it is local expediency, or the prevention of local divisions and schisms. The Patriarchate therefore favors an immediate adjustment, at the same time not neglecting all possible collaboration with the competent authorities in the preparation of a new general calendar for the Christian world."

An Encyclical from the Church of Greece emphasized the desire of good

Orthodoxists for the proposed new World Calendar: "Historically we hold that the Gregorian calendar violates the conditions of our canon for the observance of Easter. Accordingly, we have not and cannot accept it in this respect. Moreover, it is not free from other defects common to the Julian calendar, on account of which its reform is generally desired, even by western nations. A widespread desire has arisen for the preparation of an accurate calendar, free from the defects of the civil calendar now in use among all nations. Within the Orthodox Church, it is admitted and acknowledged by all that absolutely no dogmatic obstacle exists to reform.

"As, however, this general reform has not yet been possible, an immediate adjustment of some kind is required, because owing to the difference of 13 days between the Orthodox countries and their neighbors, indescribable confusion and anomaly have been introduced into social and ecclesiastical life, and thence also religious and moral injury and danger of alienation of the Orthodox laity from the Church."

The Greek Church adopted the change, but a disagreeable situation was provoked by the so-called Zealot monks of Mount Athos, whose zeal unfortunately was not tempered with knowledge. They opposed the change and rallied a group of "Old Calendarites," charging that the reform had been imposed by physical force. Political color was given to the matter. Good Orthodoxists, either from misunderstanding or evil influence, gave themselves into the hands of persons desirous of exploiting them, unfortunately, for extraneous purposes. The convening of an Ecumenical Council was proposed, but it was delayed. Opposition to it came from Russia, which was convulsed by Bolshevism, and from Serbia.

As late as 1927, the Holy Synod in Athens issued an official communication reassuring its followers: "Introduction of calendar changes does not conflict with the dogmas and traditions of the Orthodox Church. It is a tradition of the Church to celebrate the festivals on the dates fixed, but the question of when these dates fall is not a tradition, since it depends on human knowledge of natural phenomena. An all-wise Creator ordained inviolable laws for the movement of the sun, the moon, the stars and the earth. Night and day do not depend on tradition. The equinox and the phases of the moon are not a tradition. The value of the feasts and holy days does not depend on the time at which they are celebrated, but upon a pious disposition and upon their spiritual benefit."

From the Ecumenical Patriarchate in Constantinople, also, came an official pronouncement in favor of calendar reform. Under date of Feb. 17, 1927, it says:

"If our Church in unfavorable times such as were those of the 16th century, when calendar reform took place in the west, refrained from itself also correcting the error of the Julian calendar and in general condemned the one-sided calendar reform then carried out, such an attitude does not

signify and cannot possibly imply a prohibition for all time of any change whatever in the calendar. No canonical prohibition exists, and whatever prohibition there may be is concerned not with the calendar in itself, but with safeguarding the canonical decrees concerning Easter. The authentic tradition of the Orthodox Church has been faithfully preserved in the changes which have lately taken place, and nothing one-sided or arbitrary has been done. If, owing to circumstances, the change was not carried out in an Ecumenical Council, it was nevertheless carried out at the common desire of the Orthodox churches, with their common assent and indeed in a regular Great Assembly, differing only in name from a Council, and by the vote of the representatives present. The Churches which still delay in applying this change will before long introduce it, because it involves much advantage and honor to our Church, as sleeplessly caring for its flock and worthily leading it into all good and all progress."

The hope expressed in the closing sentence, that the remaining Orthodox churches would little by little adopt the changed Julian calendar, has been realized. The Church of Antioch adopted it in 1928 and the Church of Alexandria shortly afterward. Of the remaining Churches, Jerusalem and Serbia have not yet adopted the change, but have passed votes in its favor.

Although from a scientific point of view the change which has been made is limited and does not extend far enough, certainly it was correct, canonical and necessary. The further progress of the matter will show how and when the next step will become possible.

AS VIEWED FROM CHINA

By Feliciano de Vicinay, S.J., *Roman Catholic Missionary in China*

(From an Article in Spanish, published by Iberica Magazine, Barcelona)

REDUCING calendar reform to its two most important points, the aims are: first, to stabilize the date of Easter; second, to commence the year always on the same weekday. Chinese scholars have long advocated such a reform, notably Prof. Dugout, one of the victims of Nanking (1927).

It is strange, knowing the interest Catholic leaders have taken in this matter, to find a Shanghai newspaper publishing an article warning churchmen from any connection with attempts to change the Gregorian calendar. As if the arbitrary inequality of the months and their improper arrangement was the work of Pope Gregory and his assistants!

The Gregorian reform consisted mainly in the correction of the Leap Year rule. This revised rule has such great advantages that it will, of course, be retained in any further improvement of the calendar.

As for the Chinese people, who constitute almost one-third of the world's population, a calendar of 13 months would be unwelcome. On the other hand, the 12-month equal-quarter calendar would be popular throughout all China. It is to be hoped, therefore, that this project will be universally adopted.

BUSINESS OPINION

Compiled by CHARLES C. SUTTER

LEADERS of American business have registered their approval of calendar reform, particularly in the action taken during the past year by the Chamber of Commerce of the State of New York. The comprehensive resolution and report of the New York State Chamber was published in the June issue of the JOURNAL OF CALENDAR REFORM. It urged the adoption of The World Calendar, and received the unanimous approval of the members of the Chamber present at the meeting where it was presented.

Both before and after that meeting, numerous letters have been received from business leaders, approving fully of the form of revision which the Chamber adopted.

"I think the plan you are sponsoring is less radical than any other, and much more feasible of adoption," declares Gerard Swope, president of General Electric, and adds, "I think, also, that it has great advantage from a manufacturing, business, governmental and accounting standpoint, as well as private and personal viewpoints, so I heartily endorse the resolution of the Chamber and the work you are doing in promoting it."

"The suggested calendar reform appeals to me," says George F. Baker, chairman of the First National Bank of New York. "I have consulted with others whose confidence I have, with the idea of finding how the proposed calendar would appeal to people running a business. The reaction I get is that the proposal seems to be a real improvement over the present calendar, that there is apparently no disadvantage to business in its adoption, that on the contrary it would seem advantageous to business to have all quarterly periods end on a Saturday."

"In the matter of calendar reform, this seems to me the best presentation of the subject that I have read; I can see good reasons why a fixed and exact year, in which the same day of the month is the same day of the week, would be a good thing," writes General James G. Harbord, chairman of the Radio Corporation. "For the railroad industry reform of the calendar would have marked advantages," states Joseph B. Eastman, Federal Coordinator of Transportation. "The question is one which can be disposed of only by international action," suggests Andrew W. Mellon.

"I am heartily in favor of international action on revision of the calendar," observes Dr. Arthur E. Morgan, chairman of the Tennessee Valley Authority. Lammot duPont, president of duPont de Nemours, asserts, "I feel that the points made are sound and the action contemplated constructive." "I certainly would highly approve, and would do my best to help," announces William Randolph Hearst. Daniel Willard, president of the Baltimore and Ohio, remarks, "I am in favor of calendar reform. Our present calendar has many objectionable features."

"I do not know of any objections to the proposed reform, and while my acquaintance is necessarily somewhat superficial, such limited examination as I have been able to give it indicates that the plan you are advocating is practical and desirable," writes Myron C. Taylor, chairman of United States Steel.

"I am entirely in sympathy with a reform of the calendar, and should think the United States might properly call an international convention," suggests George Foster Peabody, the banker. "It seems to me that such a shift as you have proposed meets the necessities of the situation with a minimum of change from the present," states Oswald W. Knauth, vice-president of R. H. Macy and Company, who adds, "Besides which, 12 is an easier number to divide into quarters than 13; and from a business point of view, I think would answer all the needs of which we today feel the lack in our varied system. You can put me down as being heartily in favor of your plan." "I see no reason why efforts should not be made to have the United States call an international convention to consider the matter at an early date, as it is one that would be very useful and should be encouraged," says Leonor F. Loree, president of the Delaware and Hudson Railroad.

"I am very much in sympathy with some of the other members of the Chamber of Commerce in regard to obtaining a reform in the calendar," declares Cleveland E. Dodge, of Phelps-Dodge Copper. "If this reform could be brought about I am sure that it would help greatly in securing comparisons in cost accounting in industrial companies. I also think that it would make it possible to rearrange national holidays so that they would fall on week-ends, which would result in a great advantage to people working in city offices." Thomas H. McInnerney, president of National Dairy, writes: "I cannot see why there would be any objection to the calendar proposed, but international action to assure its uniform adoption would certainly be necessary. In any event, your 12-month calendar is unquestionably, superior to and more practical than the 13-month calendar that has also been suggested."

"I consider that calendar reform, if it can be effected either on the entire American continent or internationally, is as vital and essential a step forward from the anachronistic calendar under which we work as any progress we have made," observes Sidney Blumenthal, chairman of the board of Shelton Looms. "I believe that by simplification much money and time will be saved, planning ahead will be easier, and friction and uncertainty will be removed from both business and private life."

"I strongly urge the adoption of a simplified calendar, and The World Calendar seems to meet present day requirements," asserts C. H. Krueger, of the Chase Brass and Copper Company. "I have been convinced for many years that a definite change is necessary in our calendar and you may record me as being in favor of The World Calendar proposed," comments L. O. Head, president of the Railway Express Agency, who adds: "The adoption of such a calendar for general use will mean much to concerns which are continually making comparisons of a month in one year with the same month in previous years."

C. D. Mallory, of C. D. Mallory and Company, announces: "I wish to state that I am in favor of adopting the Perpetual 12-Month Plan, effective 1939. It is my feeling that the United States should either call an international convention or advise the League of Nations that it is desirable that Calendar Reform be included in its agenda for 1936." "We have long favored calendar reform and believe it will be only a question of time when it will be brought about," declares Alden C. Noble, chairman of the Merchants Fire Assurance Corporation. "The 12-month calendar is, of course, the only form of modification which stands the slightest chance of adoption."

Lawrence B. Elliman, of Pease and Elliman, writes: "I was chairman of the Executive Committee of the Chamber of Commerce at the time this matter was under consideration and I am heartily in accord with the report of the Chamber of Commerce of the State of New York and believe that their recommendations should be adopted. I will be glad to do anything I can to help carry the plan through." "I am convinced that the proposed reform is timely and would prove beneficial," says John Crosby Brown, of Tamblyn and Brown.

"I am in favor of calendar reform and from such study as I have given to the

problem, I am more favorable to the proposed World Calendar than to the 13-month calendar," states C. C. Johnson, president of the American District Telegraph, adding: "In view of the difficulties of such a change, I should say that The World Calendar idea would have more ready acceptance and would give practically all of the advantages of the 13-month calendar."

"I strongly recommend a change in our present calendar to a modern, practicable and workable calendar, to be put in universal practice through international agreement," suggests W. F. Hartranft. "The World Calendar is, by far, the best substitute that I have seen, because it is simple, clear, accurate, convenient and appears free from practical difficulties. It is very serviceable, for it equalizes the quarters, stabilizes our time system, and definitely and perpetually fixes our special days. I hope for its speedy and universal adoption."

"I feel very definitely that the United States could well assume responsibility for sponsoring an international convention to consider the matter," writes Robert Fechner, director of Emergency Conservation Work, Washington. "We are in favor of your proposed revision of the twelve months calendar," declares A. M. Stebbins, Pacific Mills. R. H. Gregory, comptroller of Western Electric, suggests: "The government should endorse through Congressional action the 12-month plan and endeavor to secure its adoption by other nations." "Calendar reform is a most important need for all interests," asserts T. O. Kennedy, of the Cleveland Electric Light and Power Company, "and President Roosevelt should make it a part of the New Deal."

"The World Calendar you propose seems to be logical and a great improvement over the present one," comments Charles F. Noyes, of the Noyes Real Estate Company, "it has definite advantages I think over the so-called 13-months calendar." R. H. Johnson, of R. H. Johnson and Company, writes: "I was at the meeting of the Chamber of Commerce of New York which took up the matter of calendar reform. The matter interested me and I wish to state that on investigation I think your aims for calendar reform are worthy ones and will benefit business and industry."

"I am very glad to endorse this work," announces L. R. Gwyn, vice-president of the Railway Express Agency, "and I am thoroughly of the opinion that a reform of our calendar will be a great blessing to every business man—in fact, everyone—who has to do with comparisons of any kind. Since the world uses the present calendar, I am inclined to think that an international convention is the best way to handle it, but it should be done as soon as possible." "Calendar reform seems most desirable; I wish you success in your undertaking," comments Archie H. Loomis, president of the Lehigh Harlem River Terminal Warehouse.

James F. Latimer, of Blythe and Company, bankers, points out: "There is no effective argument for continuance of the old calendar, but there are many good reasons for the adoption of The World Calendar." W. C. Lippencott, insurance broker, declares: "I am hopeful that The World Calendar may be put in general use by 1939. It would be a shame to have it delayed until 1950." "I fully endorse the action of the Chamber of Commerce of the State of New York," remarks Henry F. Tiedemann.

"Anything that helps simplify methods of recording is good and should be supported," observes James G. Timolat, chemical manufacturer. C. F. Ahlstrom, printing press manufacturer, notes: "If there must be a change in the calendar, the simplicity of The World Calendar should give it the preference." Charles L. Bernheimer, cotton merchant, asserts: "Nothing but mankind's inertness has delayed calendar reform. The World Calendar proposal for a 12-month year is, in my belief, superior to the exotic 13-month plan." "I have long been in favor of calendar reform and highly approve your proposal," writes Frank Boehm, insurance manager.

"The World Calendar of 12 months is a step in advance," declares Morgan H. Grace, exporter. H. Boardman Spalding, vice-chairman of A. G. Spalding Brothers, writes: "I am in complete accord with the resolution of the New York State Chamber of Commerce." "I heartily approve of the action of the Chamber of Commerce in favor of calendar reform," says William Fellows Morgan. Col. Gustave Porges, president of Strohmeyer and Arpe, states: "An international calendar reform such as suggested would, in my opinion, prove a very decided advantage to business."

ROMANCE OF THE CALENDAR

By P. W. Wilson

CHAPTER III: THE CHARTER OF COINCIDENCE

TIME is described as a weaver who spins his thread at the revolving wheel of the years, and sits at what Goethe in *Faust* calls—not quite accurately in the use of the adjective—his "humming loom." They who have watched the swift flight of the shuttle, back and forth, and listened to the bang of the big beam on the warp and woof as they lengthen into cloth, may be allowed to doubt whether any loom has ever "hummed."

Many and various are the fabrics that emerge in their multiplicity of colors and designs from the busy loom of time. In the fourth chapter of Genesis, we read of Jabal who, as the first of the nomads, was "father of such as dwell in tents"—of his brother, Jubal, first of the musicians, who was "father of all such as handle the harp and organ"—of Tubal-Cain, the first of the craftsmen, who was "instructor of every artificer in brass and iron."

Can it be said that, during the millenia of man's recorded activities, however many of these millenia there may be, anything has been elaborated that, in its field of uninterrupted continuity, is comparable with the calendar? In his treatise on Babylonian *Menologies and the Semitic Calendars*, Professor S. Langdon of Oxford tells us that "the calendar is the framework of any civilization, the time index for all business transactions and religious observances, the rule by which all daily life is regulated." On every statute, on every franchise, on every constitution, dates are the finger-prints of time as the viceroy of eternity. Here is a fabric, light as air, that may be likened unto one of those finest silks of the Orient, handwoven with exquisite skill and patience, which can be unfolded as an ample shawl for the shoulders whence it falls by its weight, clinging closely to the form. Yet its supple folds can be drawn—untorn, uncreased—through a ring no larger than a lady's finger. On the one hand, empires look with apprehension on *Der Tag*—the doomsday of Armageddon, where the fate of civilization is put in peril. On the other hand, there is what youth calls "a date" where the happiness of lovers is to be decided.

The calendar in all its various forms and variations has thus been catholic before catholicism and international before many of the nations were aware that the rest of them existed. Nor does the raiment, however constant and even careless its use, show the least signs of wear and tear. Wars are waged. Revolutions transform the system of society. But this raiment, like the everlasting mercies, is new every morning, and the only question that can arise, is whether, here and there, some gracious convolution might

not be more perfectly assimilated to the body politic which is thus nobly arrayed.

Man has been surveying the marvellous tapestry of time and, especially in our own day, has devoted an incredible amount of energy to recovering his archives from oblivion. Everywhere these archives are punctuated by dates that are the finger-prints of time as the viceroy of eternity. It is not easy to discover a record that fails to contribute its quota—a battle, the building of an edifice, a natural calamity, whatever the event may be—to the reconstruction of what has become a world-wide chronology. There has been accumulated inevitably an immense mass of miscellaneous information about calendars, ancient and modern. Some of this knowledge appears at first sight to be an inextricable abracadabra of arithmetic and astronomy and archaeology.

In our pilgrim's progress along the highway of history, we have thus to traverse regions which cannot be contemplated without a sense of dismay. The landscape includes all continents in all eras. Within these continents, we find calendars—Babylonian and Egyptian, Indian and Chinese, Roman and Greek, Hebrew and Moslem, Runic and Mexican and Polynesian—which are formidable in their diverse complexities. It is not wholly frivolous, therefore, to encourage ourselves by a reference to the admirable legend of Theseus who explored the maze in Crete wherein the Minotaur had his lair. The princess Ariadne gave him a ball of thread which he unwound as he entered and rewound as he escaped from the labyrinth. So let us hold firmly to the thread of the argument.

Sitting at a desk, most of us have a calendar of some kind within our line of vision. Often it is an ornamental affair—possibly a square of glass enclosed in a frame and, behind the glass, the days of the month are shown on a card. When the month is over,the card is turned or replaced by a new one, and there appear the days of the next month.

It is a queer little affair, this monthly calendar, with its neatly printed phalanx of figures, marshalled in orderly ranks according to letters that indicate the days of the week. Can it be that we have here a combination, as of a safe, that unlocks a door into the past—an Open Sesame that admits us into the echoing caverns of history—a cryptogram which, read aright, reveals a clue to some meanings at any rate of the life that we have to live on this planet? Look into the glass on the calendar as into a magic mirror and you will see dim and clouded reflections—shaven priests in their slow parades within the shadows of the Pyramids—the majesty of Babylonian monarchs—the ancient scholarship of a China that has faded with the centuries into the prehistoric—Maya maidens advancing in processional dance to the terraced shrines of Yucatan — Hebrew rabbis studying the priceless scrolls of their Mosaic law—Popes in the Vatican consulting the most venerable of their learned ecclesiastics—astronomers in their obser-

vatories filling volumes with their geometrical calculations—captains of industry examining graphs and charts of production and consumption and costs—seamen in their ships whose safety depends on the accuracy with which they take their bearings according to the Nautical Almanac—even the aviator whose elaboration of clock and compass is the calendar of the clouds.

What, then, is the essential meaning of this amazing instrument of convenience—its supreme and peculiar value—its raison d'etre? Is there not a phrase that expresses the central idea? The calendar may be defined as a charter of coincidence.

There are words that we are apt at times to depreciate. Such a word is coincidence. Two people meet in the street and what do we say about it? The meeting was "merely a coincidence." Yet what would be this world in which we live if innumerable coincidences did not momentarily occur—if nothing anywhere were like anything else—if all clocks told their own time —if the length of every day were different from the length of every other day? Suppose that when the clock strikes, the train did not start. Suppose that when the train started, the signal did not turn from green to red. Suppose that when the sun rose, man did not go to work—that when the sun set, he did not receive his wages. Coincidence is the alternative to Chaos, and as the charter of coincidence, the calendar is an expression—certainly the earliest expression and perhaps the only expression even today—of what ought to be order in a disorderly world.

It is coincidence that alone unites species, including man himself. Certain of these coincidences are compulsory. All of us breathe, all of us sleep, all of us eat and drink. Otherwise all of us would die. For other coincidences, man is himself responsible. In nature, there is no reason why soldiers should wear the same uniform and march in step. The uniform was designed by man and the march was ordained by man. So with an elevator. In the laws of gravity, there is no reason why it should stop at a floor and start again. It is man who so arranges it.

It is man who has elaborated the calendar. I write these words, you read them, and we seem to be, as we think, strangers. But time as the weaver has threaded a slender link between us. "What day is this?" you ask, and do not I ask the same question? You look at your calendar, and it tells you the date. Do not I look at my calendar, and does it not tell me a date that is the same as yours? In race, in religion, in nationality, in occupation, in age, in sex, in tastes, we may differ. Over beliefs and ambitions we may quarrel. But there is one point on which—despite our emotions and animosities—we agree. It is the day of the month of the year. Napoleon lost the battle of Waterloo. Wellington won it. Vanquished and victor remember June 18th, 1815.

We cannot say of any calendar that its use is exclusive of the use of all other calendars. For certain purposes, great communities — Chinese,

Moslems, Hindus, Jews and the Eastern churches among them—continue their own systems of measuring time; also, in a world less literate than we are apt to realize, there are millions of people who do not know and are not yet qualified to find out what is the day of the month of the year. This, however, we can say of the calendar with which we are familiar—the Gregorian Calendar, as it is called—that it is international, inter-religious, inter-occupational and inter-racial. Every day its use and its value are spreading further and further afield. It is not much of an exaggeration to claim that, to all intents, this calendar is universal.

In what kind of a world has this calendar been developed and maintained? There is talk about the brotherhood of man and some of us suppose that within the brotherhood, everybody lives by the golden rule, loving his neighbor as he loves himself. If the world around us had been really like this, how easy to elaborate the calendar!

No biologist, no physician is under any illusion as to the brotherhood of man. That brotherhood is not an ideal to be attained. It is a fact to be faced. Nor do men become brothers by adopting certain principles. It is as brothers that they are born and it is as brothers that they behave. Not in love but in hate was brotherhood inaugurated. It was because he was a brother that Cain killed Abel.

We say of histories that they lay undue emphasis on battles and sieges. Yet there have been bitter conflicts between nations and within nations terrible animosities have developed. Even in our own day, schisms within the brotherhood of man yawn on every side like chasms at our feet. In India there are persistent Hindu-Moslem riots. In Palestine, the Moslem and the Hebrew are competitors. In Turkey, it has been found impossible for people of diverse culture to live in peace side by side. Armenians have been slain by the million. Greeks have been deported by the hundreds of thousands. Peace or war, as we all know, is the issue.

This is the discordant world in which the calendar has been developed and well may we say that here is a miracle of unanimity. Humanists are assured that all thought, including religion, originates in man himself. The divines insist that, within the mind, there is a shrine where man, if he listens, can hear the voice of God. Tennyson would have said that the calendar is "both human and divine." It is the result, at once, of reason and of mysticism and thus it is used. On the one hand, it is indispensable to merchants and bankers and the professions. On the other hand, it is essential to churches and synagogues and temples and mosques. For thousands of years, it has been associated both with the worship of God and with the service of man.

(To be Continued)

EXCERPTS AND REVIEWS

No Doubt Among Scientists

By PROFESSOR G. SCHINDLER

State Meteorologist at Podersam, Bohemia.

(*Abstracted from German Meteorological Review*)

IT IS really surprising that today, with so many meritorious plans of standardization adopted in industry and science, the long-advocated reform of the calendar has not been already put into effect. Scientists have repeatedly indicated their approval of such a change, among them the great Svante Arrhenius. In meteorology I need mention no more names than those of Karl Fischer and W. Koeppen, whose examinations of this subject are well known.

It is unnecessary here, therefore, to indicate again the list of inadequacies and irregularities of our present calendar. But from the meteorological viewpoint it should be repeated that our abbreviated February is a continual and disagreeable reminder. February is a month in which variations in temperature are often wide. For instance, Feb. 11, 1929, showed a temperature at our station of 42 degrees lower than that of Feb. 10, 1933. Now the winter of 1928-29 was probably an exceptionally severe one. We would really like to know, statistically, whether February, 1929, was normal, too warm or too cold. The figures might even show whether the temperature of the entire winter was abnormal. And the missing two days of February might be the ones to decide that question. The winter of 1928-29 would probably turn out statistically even more severe than our records indicate, if the first two days of March, with temperatures as low as 25 below zero, could be included.

This example indicates why meteorologists want calendar revision, and approve the renewed efforts which are now being made to enact it internationally.

These efforts, however, should have the earnest and studious attention of all scientists, because one of the current proposals is for a year of 13 months, which should be emphatically rejected in advance, if for no other reason that it makes a quarterly division of the year awkward, inconvenient and perhaps impossible.

The calendar advocated by Arrhenius in Scandinavia and currently by Blochmann, Aust and others in Germany, is the same in principle and in most details as that advocated in America as The World Calendar. The best year for its adoption is 1939, when the present calendar begins on a Sunday, thus making the transition to a perpetual calendar simple and easy. There can be no doubt among scientists that the world should strive to make that year the beginning of an enduring new calendar, one worthy to stand beside our other standard systems of measurement.

Story of Sosigenes

By PROFESSOR FREDERICK HARRISON

Oxford University

(*From the "New Calendar of Great Men"*)

OF THE author of the Reform of the Calendar, under Julius Caesar in 46 B.C., nothing whatever is known except that he was an astronomer of Egypt. He was doubtless an Alexandrian Greek. When Julius resolved on amending the Roman calendar, which was now 67 days in advance of the true year, he called in the assistance of the astronomer Sosigenes. Caesar was himself a student of astronomy, and had written a treatise which long remained in use. Using his authority as Supreme Pontiff and as dictator of the Roman world, he accomplished the reform which is still the calendar of the Christian nations. It was substantially the same as that which had been introduced into Egypt by the Ptolemies two centuries before.

The year 46 B.C. Julius made to consist of 445 days; it was called the *year of confusion;* but it was more properly the *last year of confusion.* The reformed year began, not on the 25th of March, but on the 1st of January, 45 B.C. The new year was one of 365 days, with an additional day for every fourth year, in February. The alternate months of the year (January, March, May, July, September, November) were to consist of 31 days; the intervening months were each to be of 30 days (February being 29, except in leap years). This symmetrical arrangement was upset by the vanity

of Augustus in 27 B.C., when he gave his own name to the eighth month, then added the day he took from the ninth, and otherwise varied the lengths of the months into their present irregularity.

The Julian year of 365¼ days was too long by 11 minutes and 12 seconds. This must have been known to Caesar and to Sosigenes, as more than 100 years before it had been proved by Hipparchus, whose calculation was within 4 minutes of the truth. Hipparchus had calculated that the error would amount to a day in 300 years; but it seems that the error is more than double and would amount to a day in 128 years. Caesar and his astronomer doubtless considered that the secular error might be left to the future to correct. They could hardly anticipate that it would be binding on Western Europe for 16 centuries, and on Eastern Europe for nearly 20 centuries. Yet so it has proved.

The Julian Calendar, as deformed by Augustus, governed Christendom until 1582, when Pope Gregory XIII, by the advice of Lilio and other astronomers, struck out the ten days then in excess, and reformed the Calendar of Julius by an order that the last year of each century should be leap-year only when it is exactly divisible by 400. That is to say, three leap-years are suppressed in every four centuries. The years 1700, 1800, 1900 were not leap-years; 2000 will be. England accepted the Gregorian Calendar in 1752, but Russia only recently. The Greek rite still retains the Julian Calendar, in which the error now amounts to 13 days, 1900 A.D. having been counted as a leap-year.

Progress in Great Britain

By J. B. Perry Robinson

(In Home and Empire, London)

WHAT is the date of the first Sunday in April? On what day of the week will Armistice Day fall? How many working days will there be in March? Does your birthday fall on a Sunday this year?

It is because most people would find it impossible to answer these questions and many others of more importance without consulting a calendar that there has grown up in this country—and indeed all over the world—a movement for reforming the calendar and ironing out most of its inconveniences and defects.

Hardly a day passes throughout the year in which we are not caused unnecessary trouble by the clumsiness of our comic calendar system, although we have become so accustomed to it that we hardly notice it.

Modern man has subdivided eternity down to years, months, weeks, days and tiny fractions of the day mechanically recorded, but he has always been beaten by the fact that Nature does not conform to human arithmetic.

The year, instead of being fifty-two weeks long, as we like to delude ourselves (for the sake of convenience), is a day longer than that. And not only a day longer, but a day and a quarter. And not an exact day and a quarter, as Julius Cæsar thought when he introduced his Leap Year system, but only a day and five hours forty-eight minutes and forty-nine seconds (approximately). The result of Cæsar's mistake was that, as the centuries passed, the calendar and the sun didn't agree and the spring equinox became more and more wintry.

In the sixteenth century it was felt that something would have to be done about it, and Pope Gregory, after taking astronomical advice, took ten days out of the year. He also revised the Leap Year system, made January the official first month instead of March, and established the extraordinarily complicated method of discovering the date of Easter, which may be found at the beginning of the Prayer Book.

All that was in 1582, and the Roman Catholic nations adopted his reforms at once, but it was another 170 years before England followed suit, and by that time another day had been lost.

It was the famous Lord Chesterfield who was responsible for our last reform of the calendar, and in 1751 a Bill was passed providing that the legal year, 1752, should begin on January 1st, and that the eleven days, September 3rd to 13th, should be omitted. So drastic a reform shocked the die-hards of those days, who regarded tampering with dates and days as something profane, while the ignorant masses were outraged at the idea of their lives being shortened by Act of Parliament.

CURRENT PRESS COMMENT

Meeting a World Need

(From an editorial in *Pathfinder*, organ of the United Church of Canada)

OBJECTIONS to the 13-month calendar are not objections to calendar reform itself for the world cannot much longer function effectively without a revision of the calendar. The proposed 12-month revision, known as The World Calendar, appears far superior. This time-system is approved by practically everybody who examines it. It remedies most of the defects of the present system. A few minutes' study will reveal the salient features of this scheme. It involves the minimum of change in going from old to new.

The 13-month calendar is very radical, and with such a system the convenient divisibility of the year would disappear. Canadians who have interested themselves, and are interesting others, in this subject, are in favor of The World Calendar. It is a duty to understand this matter so that an intelligent stand may be taken on the issue. The government will not ratify any drastic change without discovering the wishes of the people. To be effective, the new calendar must be one that is universally acceptable.

Religious Significance

(From an editorial in the *Christian Advocate*, Nashville, Tenn.)

FROM the head of the Eastern Orthodox Church, with 140,000,000 adherents, comes a statement on calendar reform, together with an introductory statement by Dr. S. Parkes Cadman. The summary of the position of the Eastern churches on this question constitutes a challenge to the Western churches.

Two plans for calendar reform have been developed, the 13-month proposal and The World Calendar. Archbishop Germanos opposes the former and favors adoption of the latter.

The 12-month equal-quarter plan, which the Eastern church has supported in many international conferences, seems an entirely logical and effective way of remedying every serious defect of the present calendar. And from the viewpoint of the earnest churchman, it has important implications which go far beyond its merits as an improved civil and business measuring rod. For the calendar has a religious meaning, too, and a revised calendar will inevitably have an effect in unifying and stabilizing the church calendars of all the great communions. The significance of this movement in its bearing on church unity, is what has won for it the attention and support of church leaders.

Urged by Scientists

Wilmington (Calif.) *News*

INTERNATIONAL action by scientists to obtain a reform of the present calendar has been launched by the Seventh American Scientific Congress, which has just concluded its quadrennial meeting.

The 400 delegates, including prominent scientists from every country in North and South America, received a request from the Mexican government for their support on a plan for a revised calendar, and after a committee study of the subject, the Congress passed resolutions pledging the full support of scientists.

One Thing Is Certain

Erie (Pa.) *Times*

CALENDAR reform is again attracting the attention of the learned societies. A modified 12-month plan is now finding favor over the 13-month calendar urged by George Eastman of Kodak fame.

Besides the American Philosophical Society, other advocates of this World Calendar are the American Statistical Association, the Chamber of Commerce of the State of New York and the Protestant Episcopal Church.

The day is not far distant when all civilized countries will have a new calendar, designed to meet the requirements of modern life, one which need not be constantly consulted to find out on what day of the week a given day falls.

But one thing is certain—it won't be a 13-month year. Those who agree with me will please rise and say "aye." The "ayes" have it.

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CHARLES D. MORRIS CHARLES C. SUTTER

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ELISABETH ACHELIS, *President*

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FROM the American Academy of Arts and Sciences, meeting in Boston, comes a significant resolution on calendar reform. It is a reconsideration of a former action taken by this learned body, and it states that, whereas several years ago they saw fit to approve and endorse the movement for a 13-month calendar, they now feel that the 12-month revision urged by The World Calendar Association is the plan which has met with the widest international approval, and the only one which seems likely to win international adoption and enactment. They therefore hasten, in formal resolution, to give it their fullest endorsement and urge its enactment by the nations by the beginning of 1939.

Similar action endorsing The World Calendar was taken a few weeks previously by the quadrennial meeting of the American Scientific Congress, by the American Philosophical Society and others. Other important learned societies which are meeting during the next four months may be expected to act in a like way.

Science, government and the church, it appears, are rapidly reaching a complete and enthusiastic agreement on the method by which the calendar should be revised. Fortunately, the method for which they are asking is one which can be put into effect without disturbance, and with a minimum of inconvenience to the general public. It is not a revolutionary novelty. In fact, the proposed change is one which can become effective on January 1, 1939, almost without being noticed. The international machinery for reform is ready, and will presumably be set in motion by the League of Nations at the approaching meeting of the Transit Commission in the early Spring.

From the viewpoint of science and education, one of the clearest statements which has yet been published is the report made by the special committee of the American Philosophical Society, published on the first pages of this issue of the Journal of Calendar Reform. Both the report and the resultant resolution are admirable examples of clear and logical thinking, intelligently presented in forceful English that cannot be misunderstood, even by the most casual reader. We commend the perusal of this brief report to everyone interested in the subject of calendar reform.

FROM THE MAILBAG

I am personally strongly in favor of Calendar Reform.—Dr. L. S. Rowe, Director General, Pan-American Union, Washington.

Have been much interested in the articles you have sent and I thoroughly believe in your objective from every point of view.— J. A. Kinghorn, Coal Dealer, Providence.

The 13-month year seems to me impractical.—C. Butler, Architect, New York City.

I am unalterably opposed to the 13-month plan, which I have studied quite carefully. The departure is too radical.—Rev. M. E. Pearson, Salem, Mass.

You may be interested to know that in 1929 we submitted a questionnaire to our members: Whether the calendar should be reformed? Whether the United States should take part in an International Congress to consider the matter? We received 1,021 replies of which 823 were in the affirmative and 251 were in the negative. —M. H. Esser, Gen. Sec., Chamber of Commerce, Rochester.

Anyone who has taken time to study the calendar knows we are about due for a reform; we have gotten into rather a sorry plight under the old regime as illustrated last year: Easter came not only too early, but at a time entirely unexpected.—Rev. Henry Darlington, New York City.

I read your Journal with unabated interest, and I am more than ever in favor of The World Calendar.—I. E. Hirsch, Pittsburgh.

The claim that there would be great advantage from a statistical point of view in having 13 equal months is seriously misleading. Equality does not mean comparability. It would still be necessary to allow for seasonal variations in making statistical comparisons and analyses. A February and an August of equal length would be no more comparable, as far as virtually any kind of statistics is concerned, than are a week in February and a week in August under the present or any other calendar. Calendar reform cannot create comparability which does not exist.—H. M. Flinn, Amer. Tel. and Tel. Co., New York City.

The 13-month plan would be calendar deformation instead of reformation; would be worse than our present system.—A. W. Martin, Tarkio College, Tarkio, Mo.

The "Journal" is making history. It is fine literature and a fine job throughout.—C. A. Bauer, Statistician, New Orleans.

Believe that advantages of a year whose dates do not differ greatly from long-established ones, and which is divisible into one-half and one-quarter and one-twelfth (i.e. 12-month calendar) outweighs advantages of 4-week months (13-month calendar).—D. H. Leavens, Harvard Business School, Boston.

I am convinced that our present calendar is illogical, confusing, and introduces unnecessary complications into not only statistical work, but also daily living. The worst feature from the scientific point of view is the illogical division into unequal months (not only as regards to length, but also working days, etc.) and unequal quarters, which seriously impairs the value of statistics and necessitates much manipulation to make months and quarters comparable. A new calendar would greatly simplify much of the statistical and accounting work of business.—Dr. J. A. Neprash, Prof. of Sociology, Franklin and Marshall College, Lancaster, Pa.

Have always been interested in this question.—R. E. Laramy, Supt. of Schools, Altoona, Pa.

An effort should be made to educate Congress. The present administration is receptive to new ideas.—Pierce Butler, Teacher, New Orleans.

The reform of the calendar is certain to take place in the not distant future. In view of this fact, it seems best that the Churches, which have so deep and important an interest in it, should lead in the matter.—Rev. C. A. Jessup, St. Paul's Cathedral, Buffalo.

Very much interested in calendar reform—put it across by 1939!—C. M. Pruitt, New York University.

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Membership is based on an active interest in the study of an adequate and effective improvement of the calendar. Owing to lack of space, a large number of names have been omitted. They will be printed in future issues.

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EDITORIAL PARAGRAPHS

As the result of the discussions aroused by the League's activities, public opinion in favor of calendar reform is gradually becoming articulate. Some day civilized nations will have a calendar which will meet the requirements of business men, schools and the church, and which need not be referred to on some wall or desk in order to find out on what day of the week the new month or the new year falls. —New York *Times.*

If the world is to tinker with its calendar the job should be done in a way to cause the least possible disturbance in human affairs, and for that the proponents of the 12-month calendar have certainly offered the best plan.—Providence *Journal.*

It is recommended by Women's Club leaders that all groups of women include calendar study in next season's programs —investigating the problems, the possible solutions and deciding what policy women, as a unit, will adopt in the matter.—Baltimore *Evening Sun.*

Agitation for calendar reform continues throughout the world, and action may be taken in this direction in the next few years.—Buffalo *News.*

The World Calendar is a moderate reform which involves the adjustment of only 7 days in the year and leaves our present calendar the same in appearance and operation. It is easy to imagine that the great body of the public would scarcely notice the transition into this new form, which yet contains features which give it an immense advantage over our present system.—Quebec *Diocesan Gazette.*

Latest convert to The World Calendar plan is the New York State Chamber of Commerce, which recently unanimously adopted resolutions pledging support of the new reformed calendar.—Tampa (Fla.) *Times.*

Elaborate arguments for calendar reform which have been devised are admittedly sound. Like the adoption of Standard Time in the United States, it may come about without a ripple of dissent after years of agitation without apparent results.—Wilmington (Del.) *Star.*

An international movement by scientists to obtain a reform of the present calendar has been launched by the Seventh American Scientific Congress, which just concluded its quadrennial meeting in Mexico City.—Milwaukee (Wis.) *Leader.*

A project which is gaining every day a larger number of supporters and which from a personal initiative has already been considered by the governmental circles of different countries and by the League of Nations, is the calendar of uniform quarters. This project has had great acceptance in the majority of the countries, particularly in our Continent, where there is a Latin American Committee for The World Calendar actively working to get the approval of the Government to such reform.—Valparaiso (Chile) *El Mercurio.*

If the calendar could be fixed so that it would stay put, we might at least have one of our foundation stones settled.—Utica (N. Y.) *Observer-Dispatch.*

Changes in the calendar are being advocated by the Chamber of Commerce of the State of New York. The proposed calendar could conveniently be put into effect in 1939.—Passaic (N. J.) *Herald-News.*

In this country the 12-month perpetual calendar is favored.—Ogden (Utah) *Standard Examiner.*

Intensive efforts to line up club women to work for calendar reform are under way.—Bryn Mawr (Pa.) *News.*

It is common knowledge that reforms—political, social, religious and others—have rarely ever developed the momentum to carry them into effect until women have sponsored them. For that reason, The World Calendar Association's outline on the subject of calendar reform should be placed in the hands of leading club women everywhere.—Wilmington (Cal.) *Press.*

Had the Eastman 13-month calendar plan been adopted generally, each of the months would include a Friday the 13th. And there you have at least 13 reasons why the proposed revision probably will never become effective.—Batavia (N. Y.) *News.*



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